

Job Aid for an Automated Battalion Tactical Operations Center: Combat Vehicle Command and Control (CVCC) Application

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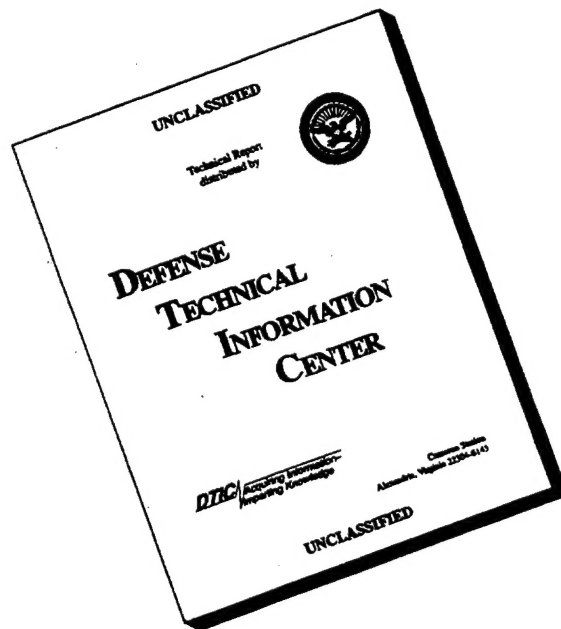


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14. ABSTRACT (<i>Maximum 200 words</i>): The U.S. Army's reliance on advanced information systems underscores their anticipated impact o battlefield information centers, such as Command and Tactical Operations Centers (TOCs). This job aid was developed for staff members in an automated battalion TOC, as part of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) efforts to explore the impact of advanced information systems on armor operations. Although conventional staff assignments were maintained, the introduction of automated TOC workstations significantly impacted how information gathering, processing, and distributing functions were performed. This aid provided the TOC's staff members with directions on when and how to perform essential staff actions during real-time battalion level operations. This job aid highlights the need for related training initiatives and may guide developers in their efforts to provide the training support needed as the Army develops advanced information systems.					
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JOB AID FOR AN AUTOMATED BATTALION TACTICAL OPERATIONS CENTER:
COMBAT VEHICLE COMMAND AND CONTROL SYSTEM (CVCC) APPLICATION

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JOB AID FOR AN AUTOMATED BATTALION TACTICAL OPERATIONS CENTER:
COMBAT VEHICLE COMMAND AND CONTROL SYSTEM (CVCC) APPLICATION

Introduction

The operational concept for the U.S. Army's future force, Force XXI, impacts the functions currently performed at all organizational levels (U.S. Department of Army, 1994). This concept's heavy reliance on advanced information technologies underscores its anticipated impact on battlefield information centers, such as Tactical Operations Centers (TOCs).

Currently, conventional TOCs are defined by location and a functionally aligned set of staff members organized to provide battlefield commanders a means to exercise control over his forces. Force XXI concepts stress that future information centers (e.g., Battle Support Centers) equipped with advanced information systems will become more mobile, smaller and more capable. Staff members assigned to Force XXI information centers are expected to become "actual players rather than just information gatherers and will, with the commander become leader teams" (U.S. Department of Army, 1994, p. 13). The changes anticipated in the Army's future battlefield information centers are far reaching, and such changes require the development of related training programs and performance aids.

The U.S. Army Research Institute (ARI) supported the Army's turn-of-the-decade efforts to explore the impact and potential of advanced information technologies on armor operations. This job aid developed for the staff members in an automated battalion TOC, for example, is one of the products that resulted from this work. Related work is summarized here to provide a documented context for this product.

ARI's initial efforts to evaluate the impact of advanced information technologies addressed crew and platoon performance using tank simulators equipped with automated Command, Control and Communication (C³) systems (Du Bois & Smith, 1989, 1991). Subsequent ARI efforts, under a research and development program titled Combat Vehicle Command and Control (CVCC), extended this vehicle-based work to armor company and battalion operations (Leibrecht, Winsch, Ford, Sawyer, Meade, Ainslie, Smith, Sever & Doherty, 1992; Leibrecht, Meade, Schmidt, Doherty & Lickteig, 1994; O'Brien, Wiggington, Morey, Leibrecht, Ainslie & Sawyer, 1992a). These CVCC efforts also included the development of an automated TOC to support battalion-level evaluations on advanced C³ systems. In contrast to a conventional battalion TOC's reliance on voice-based radio communications and paper maps, this automated TOC provided computer-based workstations with digital report capabilities and electronic map displays.

All of this ARI work on automated C³ systems, entailed soldier-in-the-loop evaluations conducted in a simulation test bed called SIMNET (Simulation Networking) at Fort Knox, Kentucky. This test bed's simulation architecture, Distributed Interactive Simulation (DIS), also served as the communication network that linked TOC- and simulator-based information technologies used by the participants in these ARI evaluations (Greess, 1994). The primary focus for this work included the evaluation of operational, usability and training issues associated with advanced information systems. This job aid reflects this work's emphasis on the impact of such systems on training (Ainslie, Leibrecht, & Atwood, 1992; Atwood, Winsch, Sawyer, & Meade, 1994; O'Brien, Morey, & LaVine, 1992b).

This report documents the job aid developed to support the digitally-equipped staff members who served in the CVCC automated battalion TOC. This CVCC TOC generally maintained the staff roles and functions of a conventional TOC. Specifically, the primary staff workstations for this automated TOC supported the tasks and responsibilities of the battalion commander or his Executive Officer (XO), the assistant to the Operations Officer (S3), the Intelligence Officer (S2), and the Fire Support Officer (FSO). Although conventional staff assignments and functions were maintained, the introduction of automated TOC workstations significantly impacted how information gathering, processing and distributing functions were performed (Leibrecht et al., 1994).

Procedures for gathering information on current battalion operations, for example, were highly automated and primarily entailed visually monitoring the TOC workstations' C³ map displays. These displays continuously updated the location and status of each simulated tank in the battalion, at either the individual tank or aggregate unit level (platoon, company, battalion) selected by each staff member. Status updates included ammo, equipment, fuel and personnel data provided in either color-coded (Green, Amber, Red and Black (GARB)) "pie-chart" overviews, or in bar-graph formats with numeric data (e.g., 150 gallons). Similarly, a mission planning/preparation tool called Concept of Operations (COO) allowed the command and staff group to preview a semi-animated sequence of unit locations for the operation, as planned, on an electronic Situation Display in the TOC. One telling example of this TOC's impact on performance was the "quiet" nature of this TOC, as communication mode shifted from conventional voice to automated digital reporting (Leibrecht et al., 1994).

This job aid was developed to address, in part, the changes in staff performance introduced by the insertion of these automated TOCs. Job aids are generally recommended when workers are expected to perform novel and complex procedural tasks, and particularly when that work supports real-time operations. This particular job aid was developed, therefore, to assist CVCC TOC staff members in the performance of novel procedures and subtasks during battalion evaluation exercises. As an integral part of

the CVCC test units conducting battalion-level operations, the staff and their TOC workstations exchanged digital communications with the battalion's simulator-based unit and tank commanders equipped with compatible C³ displays, over the DIS network. In general, this job aid provides detailed descriptions of the procedures required for performing the TOC's information gathering, processing and distributing functions (see also O'Brien et al., 1992b). In particular, the aid provided the CVCC staff members with directions on when and how to perform essential staff actions during real-time battalion level operations (see also O'Brien et al., 1992b).

Publication of this job aid may highlight the need for related training initiatives and performance aids in support of ongoing Force XXI efforts to apply advanced information technologies. Although the impact of the CVCC TOC technologies was markedly less than those envisioned for Force XXI Battle Support Centers, job aids should facilitate the performance of future operators using advanced information systems. Documentation of this job aid may also guide training developers in their efforts to provide the training support needed for emerging Force XXI information systems.

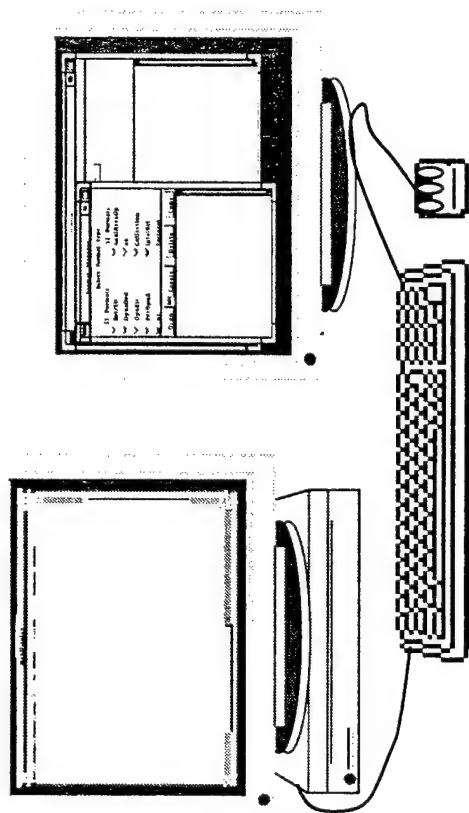
As postscript, this job aid is provided in the Appendix to retain its original paper-based, 3-ring format. In contrast, electronic, on-line formats for job aids are now almost routine for computer-based applications. While an on-line version of this TOC job aid was considered for the CVCC program, resources and priorities prevented its development.

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Battalion Tactical Operations Center (TOC) Workstation



Job Aid

FOREWORD

This Job Aid is designed as a quick-reference guide for users of the Combat Vehicle Command and Control (CVCC) Battalion Tactical Operations Center (TOC) workstations. The Job Aid is for use by personnel who have completed the TOC workstation training developed for the CVCC evaluations.

Because of the modular design of the TOC workstations, this Job Aid applies to users of any type CVCC TOC workstation (e.g. S2, FSO, Assistant S3). The design allows functional modules to be activated / deactivated for selected workstations based on functional role of the user. This modular approach is intended to provide maximum configuration flexibility and operational redundancy.

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INTRODUCTION

The purpose of this Job Aid is to provide a quick-reference guide to augment the CVCC TOC Workstation Training Course. It is designed as an aid to the trained workstation operator, not as a stand-alone training document.

The workstation configuration and network presented in the Overview section are for illustrative purposes. The modular design of the system allows for multiple and redundant workstation functionality, and a networking capability that provides internal workstation linkages as well as external connections to simulators and higher headquarters.

Users of this Job Aid should refer to the CVCC TOC Workstation Training Course for a detailed explanation of terms and a full description of the system functionality and operations.

USING THE JOB AID




Organization

The Job Aid is organized by major module and associated functional areas. After a general overview section and system management section, each of the modules is presented as part of the total system functionality and addresses the features available to the user.




Each feature sub-section is designed to provide an outline of action/response activities (right side of page) and their associated screen displays (left side of page). In some cases, where functionality has been previously illustrated, only appropriate sub-menus are displayed on the left side of the page.

USING THE JOB AID (continued)

Conventions

- M1 tank symbol,  - indicates major feature headings
- Circled numbers, e.g., ① - indicates association between outline item (right side of page) and graphic illustration (left side of page)
- Boxed word, e.g., Map - indicates menu item or "button" on which to place pointer
- Arrow,  - pointer displayed on screen illustrations
- Return Key,  - key on workstation keyboard used to apply some labels/functions
- Italicized words, e.g., *Window will be restored to screen* - indicates response from the system

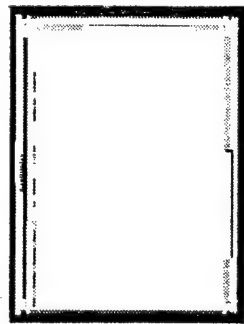
OVERVIEW

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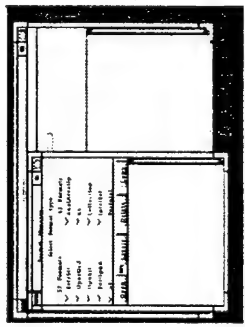
OVERVIEW

Battalion TOC Workstation

Map Display Monitor



Message Monitor



Purpose

User's Job Aid

Quick-Reference Guide

Assumes Workstation Training



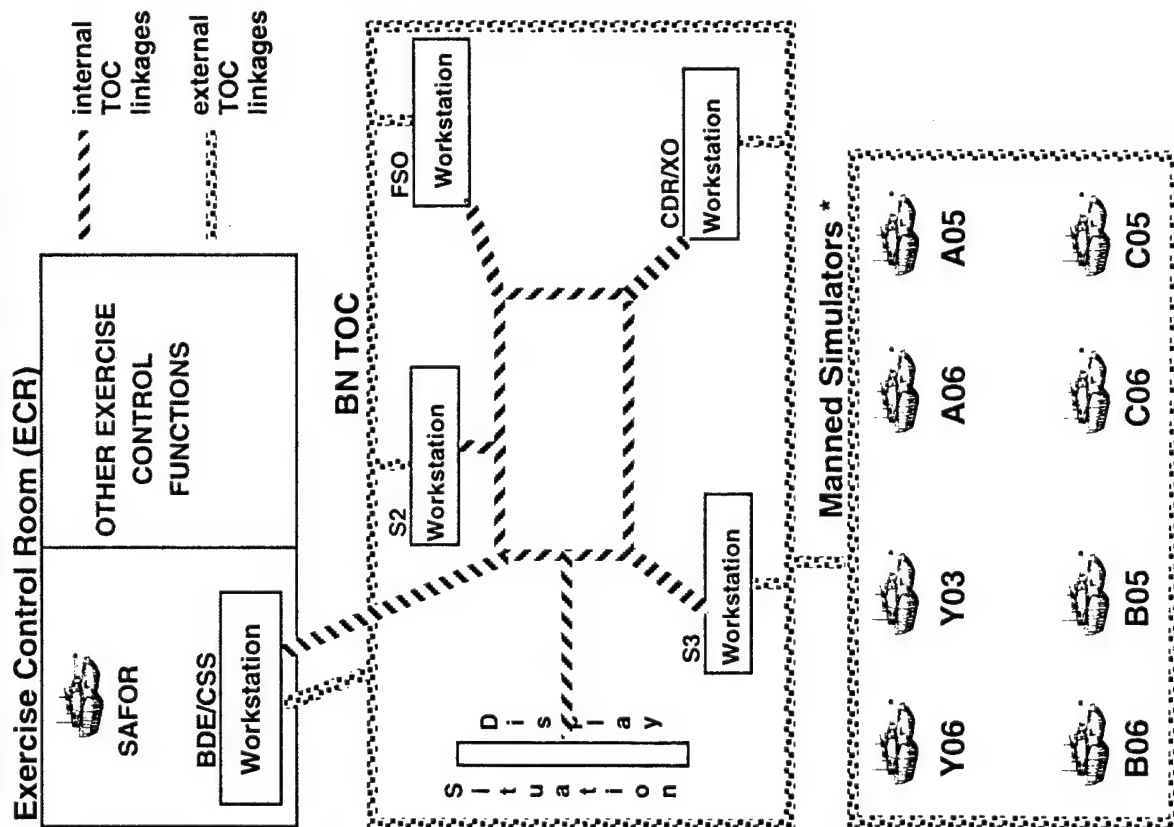
Mouse



Keyboard

OVERVIEW

A Type-Workstation Configuration/Network



* NOTE: All manned simulators are linked to the TOC and to each other



Workstation Network

Internal TOC linkage

External to simulators and Bde



Workstation Capabilities

Create, send and receive combat reports

Create, send and receive OPORDs, FRAGOs, and Overlays

Display tactical situation

Tactical Operations Center Workstation Configurations

S-3 Workstation

Overlay Module
Message Module
S-3 Formats Module
Workbook Module
Concept of Operation Module
Operational Effectiveness Module
Task Organization Module

CDR/XO Workstation

Concept of Operation Module
Overlay Module
Message Module
S-3 Formats Module
Operational Effectiveness Module
Task Organization Module

CSS Workstation

Logistics Module
Operational Effectiveness Module
Message Module
Workbook Module
Overlay Module
Utilities
SEND
CHECKPOINT

S-2 Workstation

Overlay Module
Message Module
S-2 Formats Module
Workbook Module
Operational Effectiveness Module

FSO Workstation

Fire Planning Module
Overlay Module
Message Module
Workbook Module

SYSTEM MANAGEMENT

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System Management



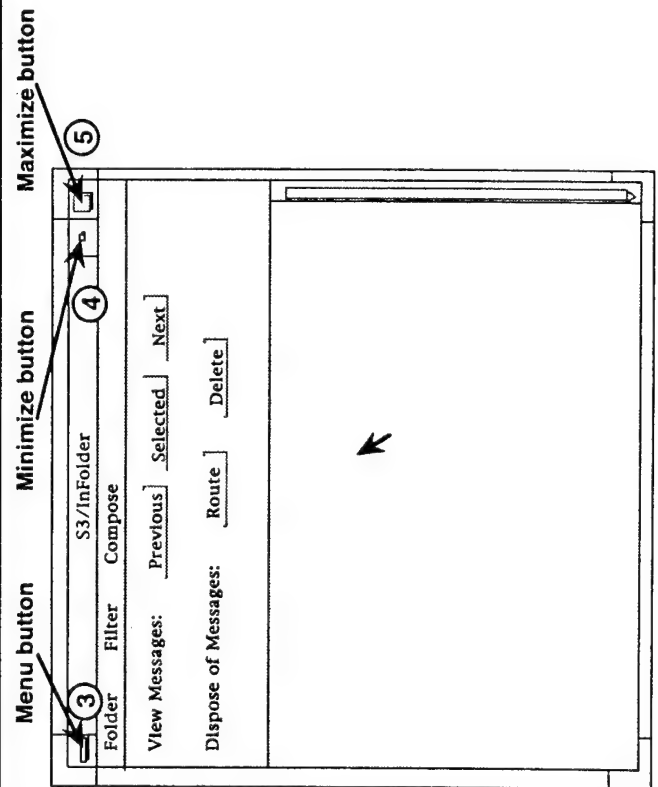
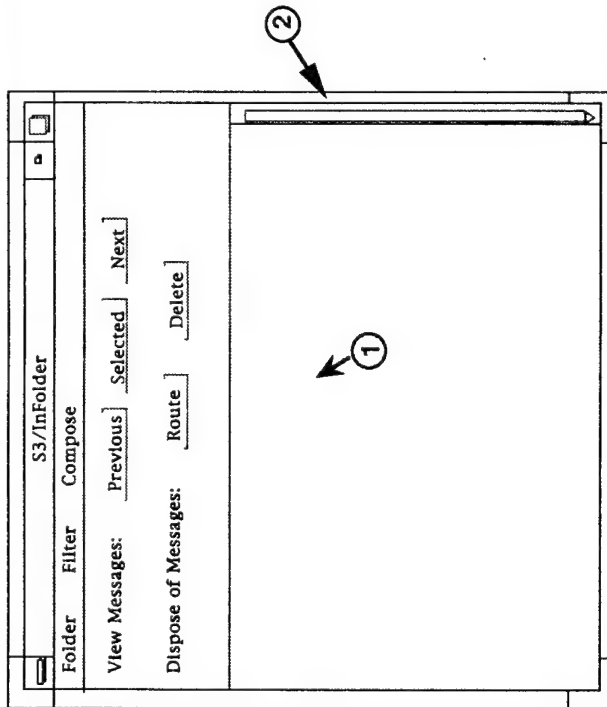
Windows

Activating a Window:

- ① Point to any part of window
- ② Window frame color will change to light tan color

Window Features:

- ③ Menu Button --
Selects functions to control window size and location
- ④ Minimize Button --
Shrinks window to an icon menu
- ⑤ Maximize Button --
Enlarges window to cover entire screen

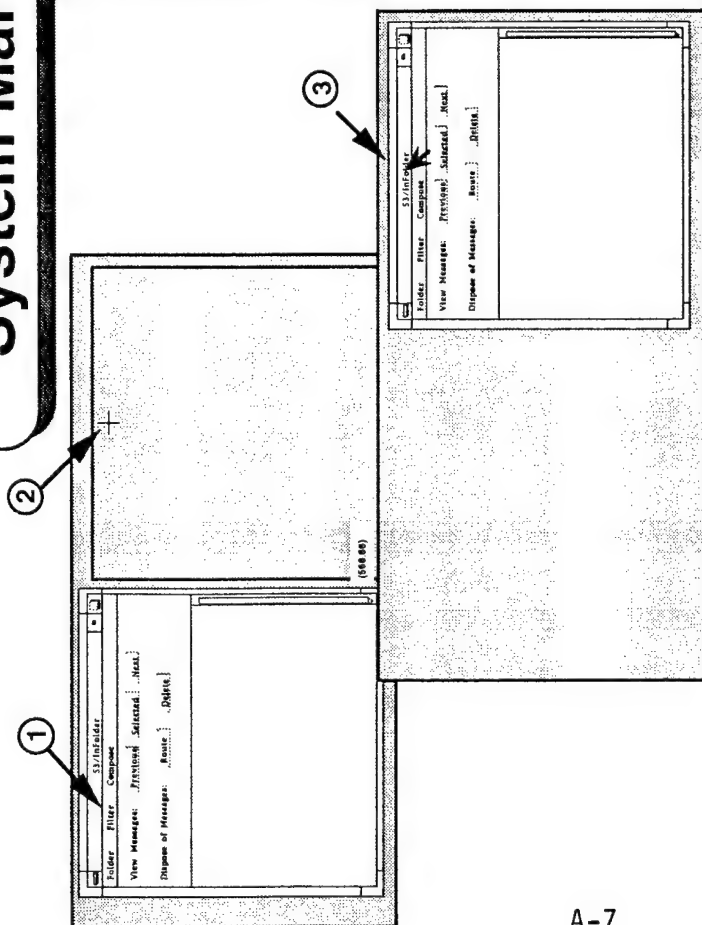


System Management

Windows (cont.)

Moving a Window:

- ① Point to a title bar
- Press and hold left mouse button
- ② Drag to desired location
- Release mouse button
- ③ *Window will "drop" at new location*



Resizing a Window:

- Point to frame
- Press and hold left mouse button
- Drag to desired size
- Release mouse button

Window will redraw at new size

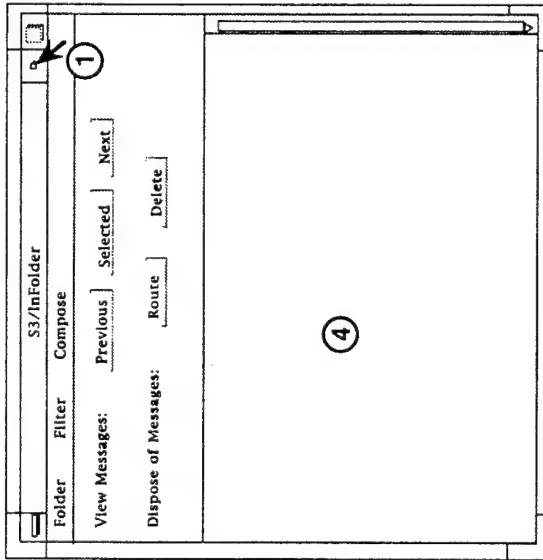
To stretch or shrink the window...	Point to...
vertically from the top	top of the frame, above the title bar
vertically from the bottom	bottom of the frame
horizontally from the right	right side of the frame
horizontally from the left	left side of the frame
diagonally from the bottom left corner	frame's lower left corner
diagonally from the top left	frame's upper left corner
diagonally from the top right	frame's upper right corner
diagonally from the bottom right	frame's lower right corner

System Management

Windows (cont.)

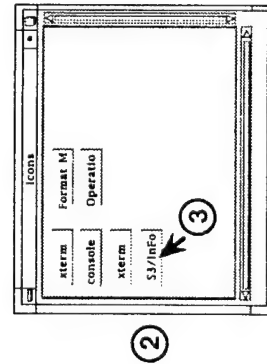
Reducing Windows to Icons:

- ① Click left mouse button on Minimize Button
- ② Window will become a title bar in an icon menu



Restoring Windows:

- ③ Double click left mouse button on title bar in icon window
- ④ Window will be restored to screen



System Management



Menus

Selecting Menu Items:

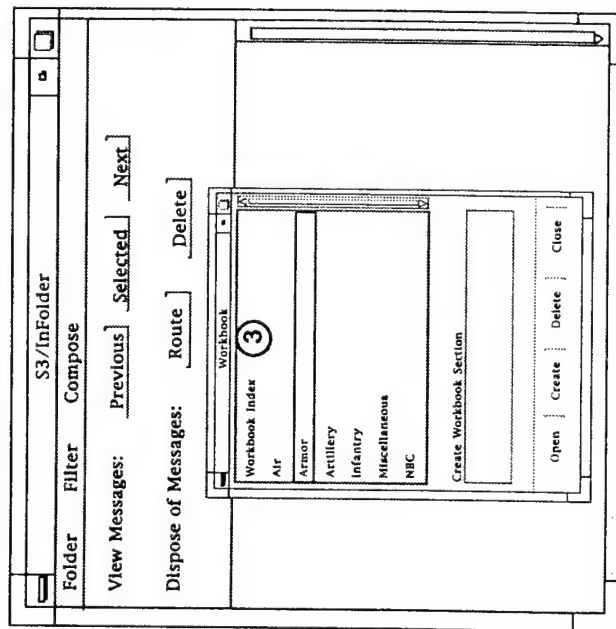
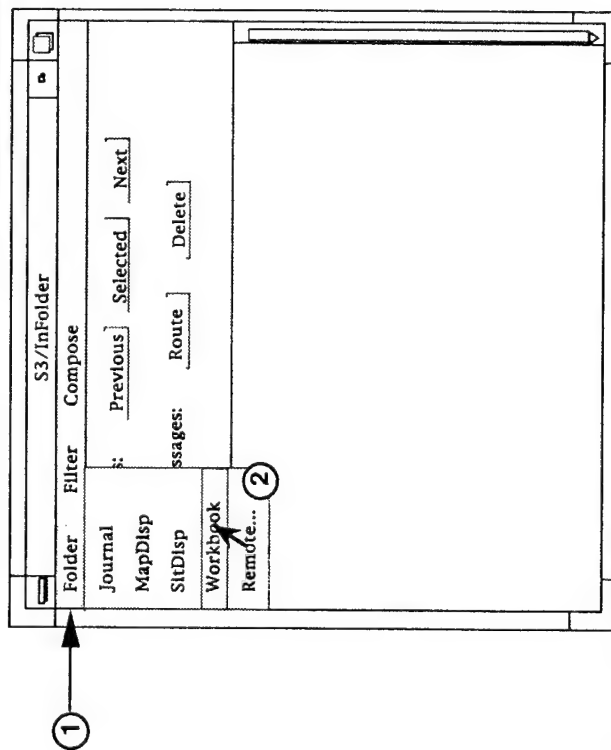
- ① Point to desired menu title (e.g. Folder)

Hold left mouse button down

Drag pointer down menu

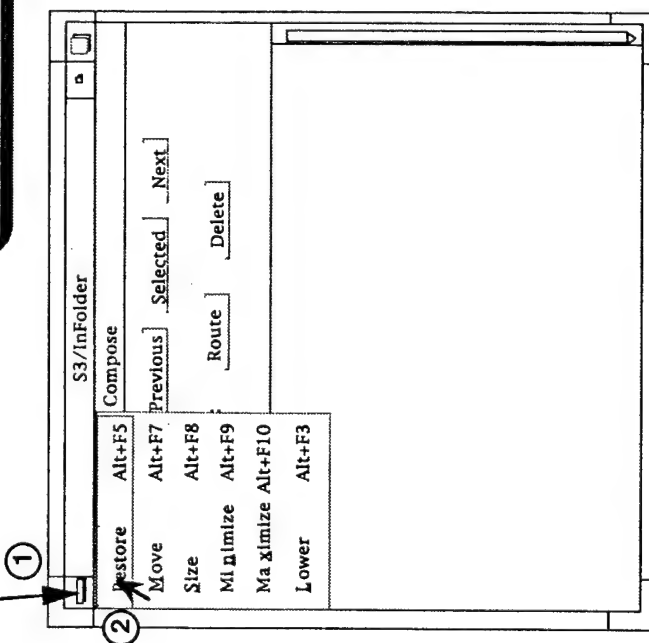
- ② Release mouse button on highlighted selection (e.g. **Workbook**)

- ③ *Selected menu item will appear as a window*



System Management

Menu button



Menus (cont.)

Selecting a Menu function:

- ① Click left mouse button on menu button
- Drag pointer down menu
- ② Release button on highlighted selection

*The selected function will be executed **

* NOTE: Function keys (i.e. Alt + F _) are not operational at this time

To do this...	Choose...
Restore a window to its previous size and location	Restore
Change the location of the window	Move
Change the size of the window	Size
Enlarge the window to cover the entire screen	Maximize
Shrink the window to an icon title bar	Minimize
Send a window to the back or bottom of the window stack	Lower

MAP MODULE

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MAP MODULE



Features

Overlays

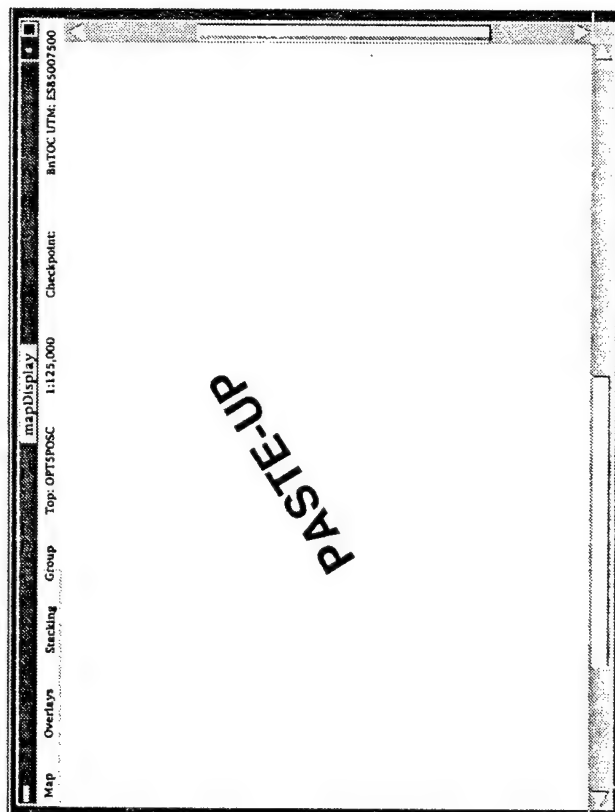
Stacking capability
NATO symbology
Storage/retrieval
Editing

Vehicle Icons

Automatic POSNAV posting
(friendly only)
Aggregation / deaggregation
Near real-time updating

Message Icons

Posting to map display
Icon/text message linkage
Flashing highlighter



MAP MODULE



Operations

Scaling

- ① Point to Map menu
- ② Click on desired scale

Map, overlay(s), icons, and text will adjust accordingly

Scrolling

- ① Point to Map menu
- Click on desired method:

③ **Center Home** - centers display on BnTOC UTM coordinates

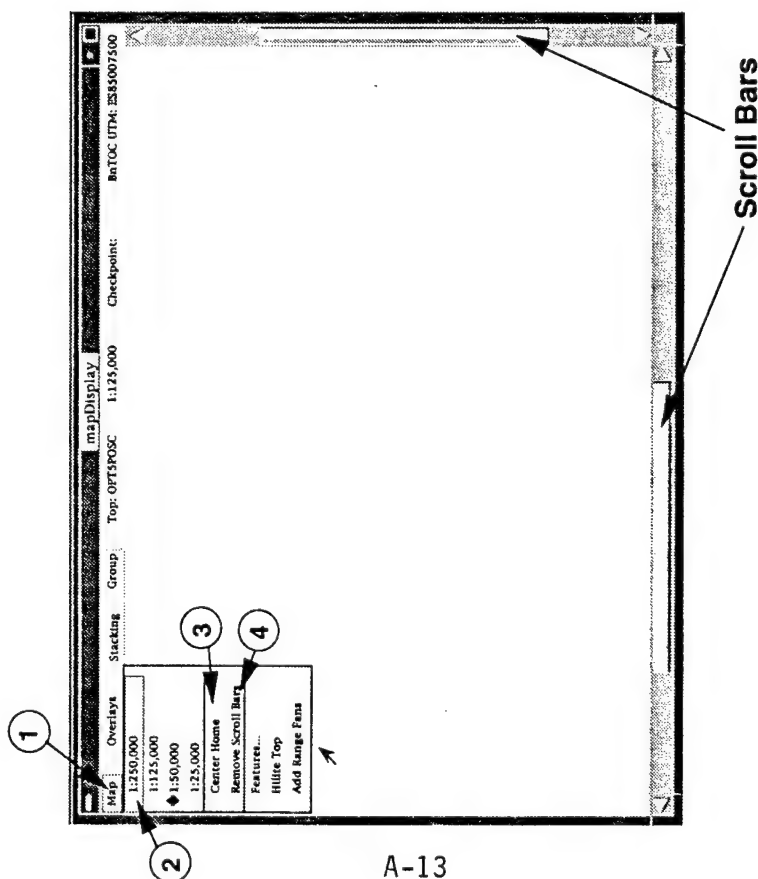
④ **Remove Scroll Bars** - on/off toggle for scroll bars

Auto-scrolling - moving ("bumping") created objects against edges of screen will cause map display to scroll (in Edit Overlays mode only)

Dragging - Click and hold right mouse button

Move cursor to desired location

Release right button at desired location
Screen will scroll to new location



MAP MODULE

Operations (cont.)

Selecting Map Features

① Click on Features option

Toggle on/off desired feature(s) *

② Contour Lines

③ Grid Lines

④ Roads

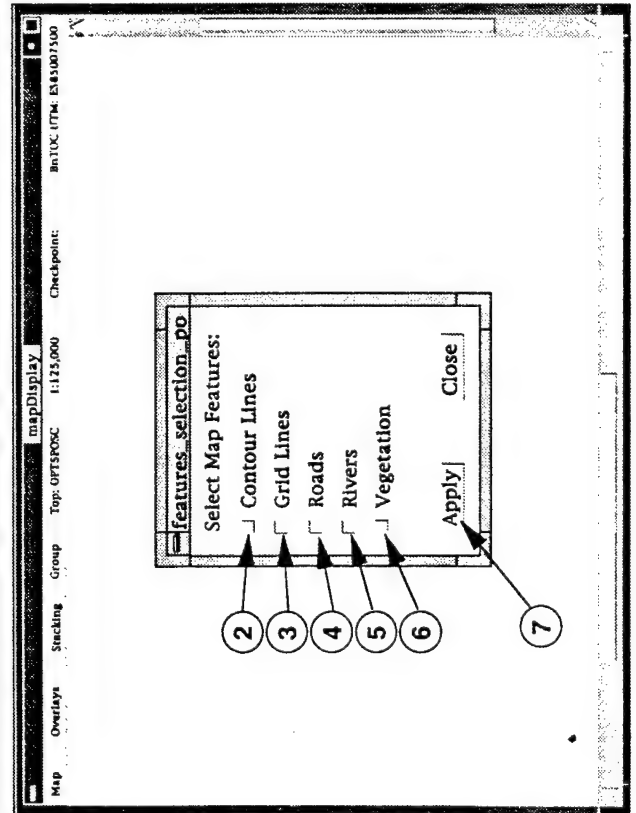
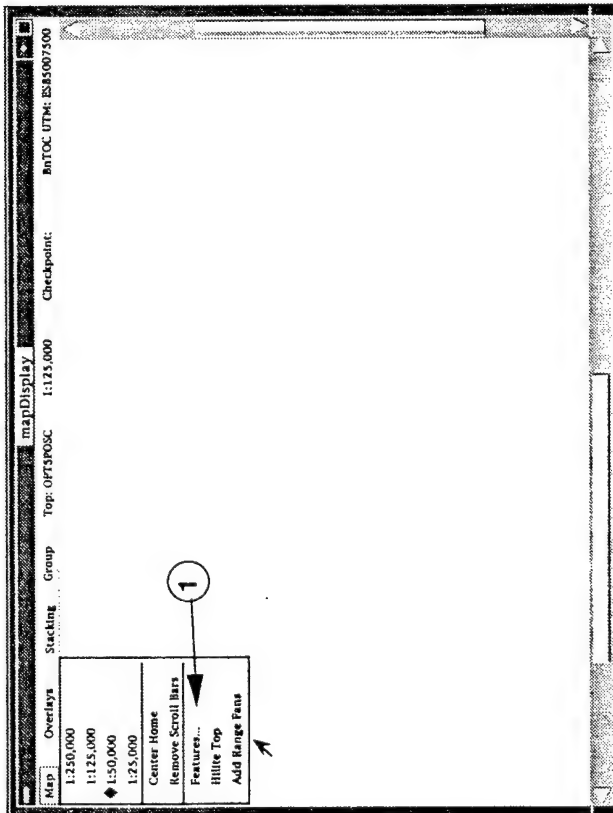
⑤ Rivers

⑥ Vegetation







⑦ Click on Apply

Selected features will be displayed on the map screen

* Note: You may select any combination of features -- or none at all

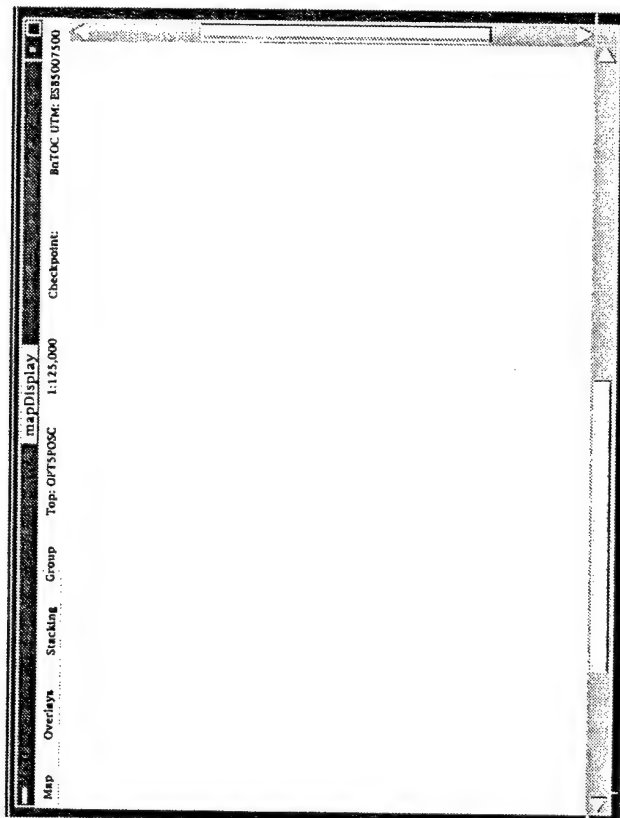


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Overlays

Map Display in Normal Mode



Modes

Normal Mode

You may:

- Select / deselect features
- Highlight top overlay
- Add / delete range fans
- Select an overlay to edit
- Name a new overlay to create
- Send an overlay to a simulator
- Copy an overlay from another workstation
- Delete overlays to/from the stack
- Show text associated with an existing overlay
- Post / unpost or rotate stacking order

Edit Mode

Occurs when **Overlay** menu is selected

You may:

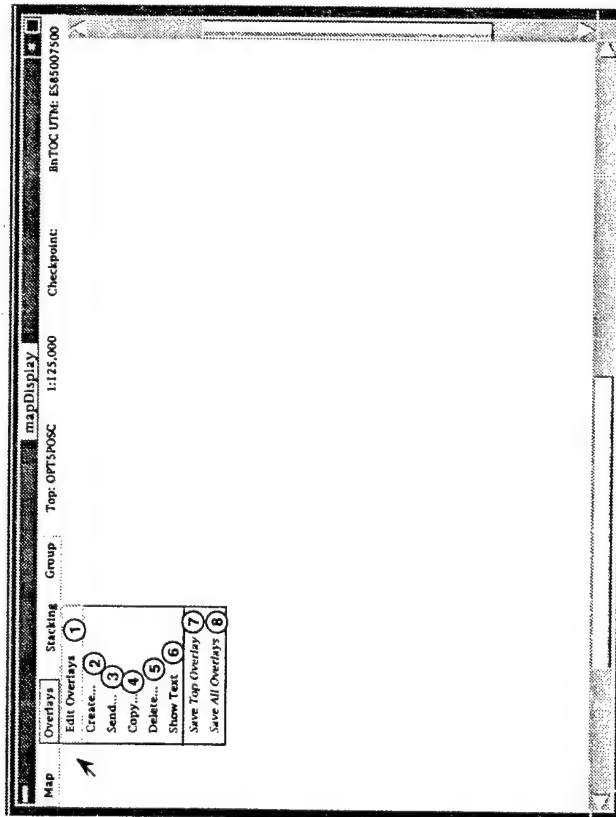
- Edit an existing overlay
- Create a new overlay
- Save top or all overlays

Overlays



Options

- ① **Edit Overlays** - edits existing overlay
- ② **Create** - creates a new overlay
- ③ **Send** - sends an overlay to the MI Simulators and other workstations on the Battalion Command Net, and to the TOC Situation Display Map
- ④ **Copy** - allows a workstation to copy an overlay from another workstation
- ⑤ **Delete** - deletes an overlay from the workstation disk
- ⑥ **Show Text** - displays text associated with the top overlay
- ⑦ **Save Top Overlay** - saves an edited/created overlay
- ⑧ **Save All Overlays** - saves all edited/created overlays



Overlays



Creating Overlays

① Select **Create** from Overlays menu

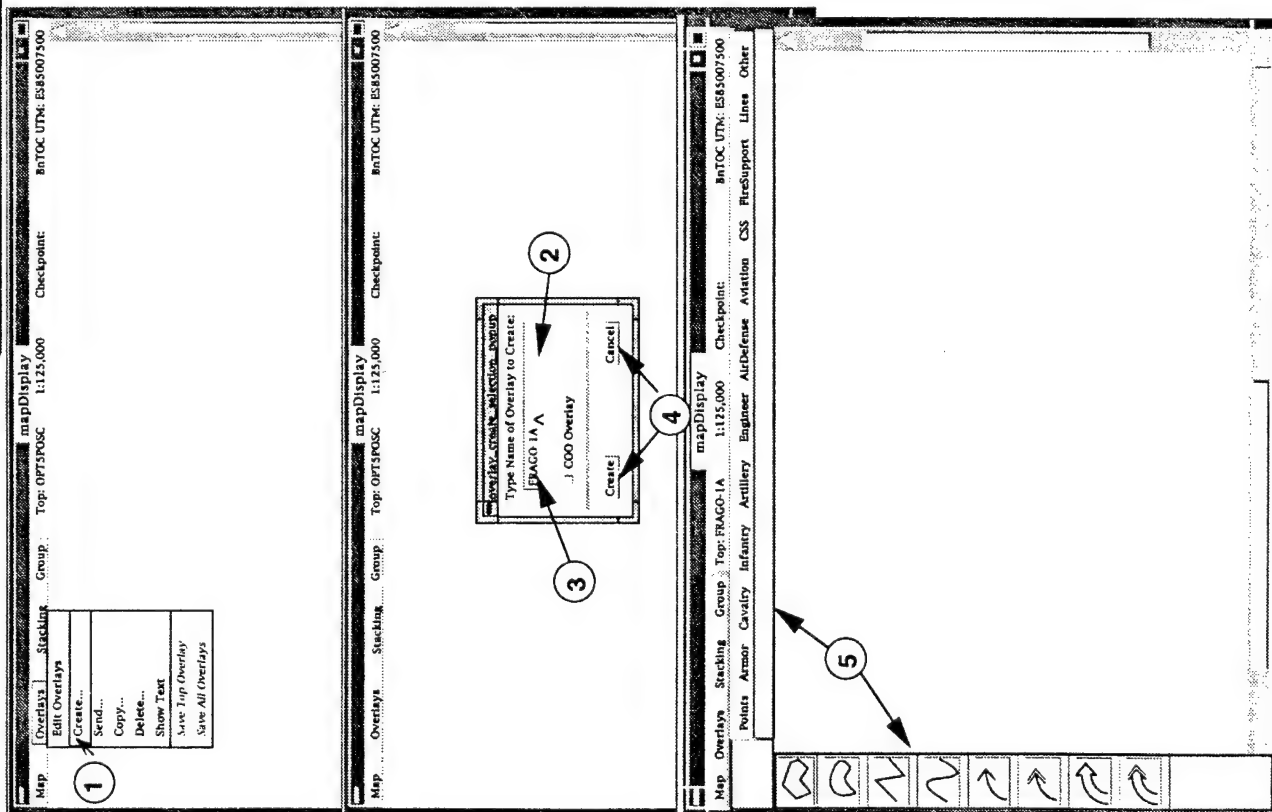
② Click on name window

③ Type name of overlay in window
(Maximum of eight characters with no blank spaces allowed)

④ Select **Create** (or **Cancel** if desired)*

⑤ *Overlay tools become available on screen*

* NOTE: COO Overlays are addressed in a later tab



Overlays

Creating Overlays (Cont.)

Creating points of interest

- ① Select **Points** option
- ② Click on desired object
Object icon will appear in the preview box

- ③ Select attributes (see below)
Click on desired object location
Icon will "drop" on screen

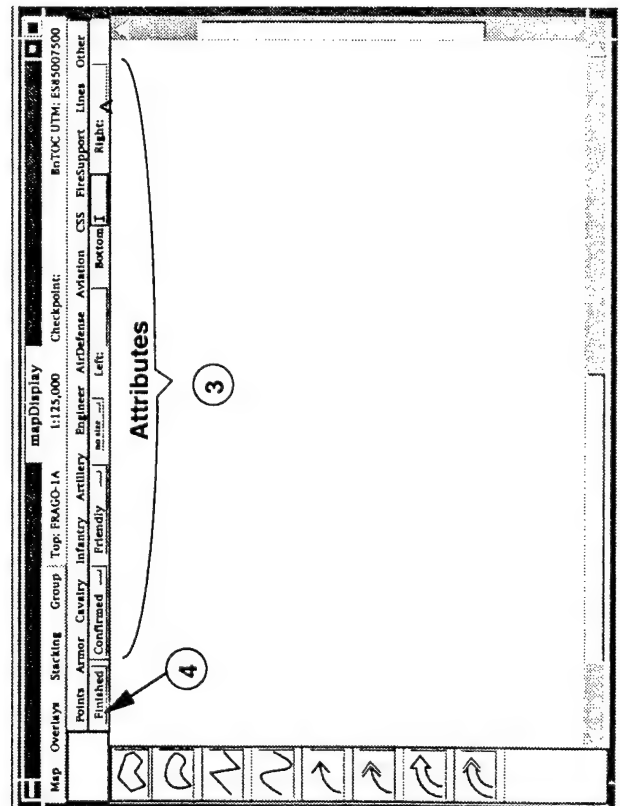
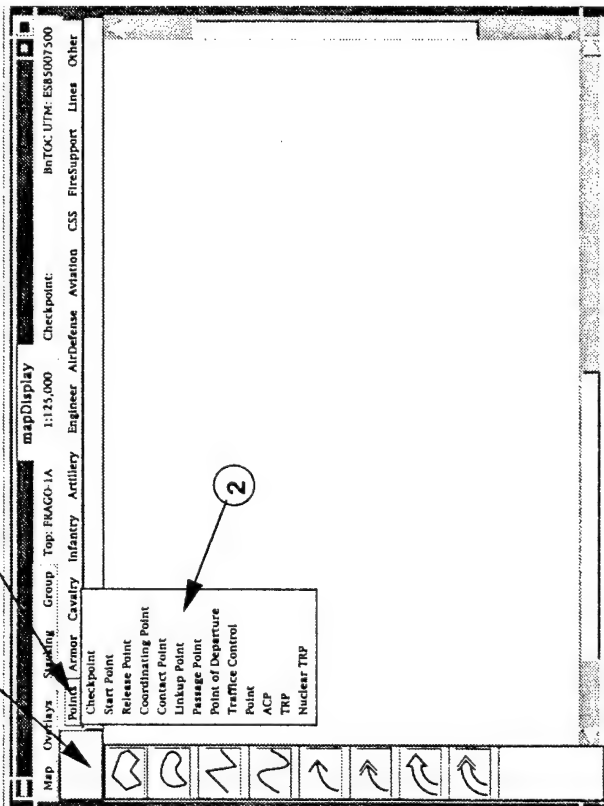
Defining appropriate attribute

- ③ Select appropriate attribute

Unconfirmed: dashed line
 Confirmed: solid line
 Friendly: blue icon
 Enemy: red icon
 Size: plt, co, etc.
 Left: left label
 Bottom: bottom or center
 Right: label right label

- ④ Select **Finished** when object is complete

Preview Box



Overlays

Creating Overlays (Cont.)

Creating Unit Symbols

- ① Select general unit type from menu bar
- ② Click and drag pointer to specific unit type
- ③ Unit symbol appears in Preview Box

Define attributes

Friendly/Enemy

Click and drag

- ④ Size

Click and drag

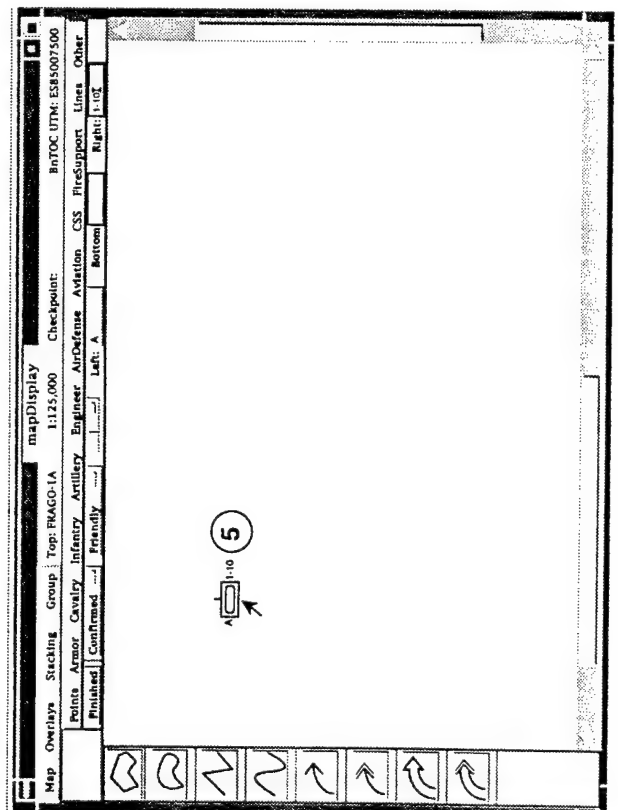
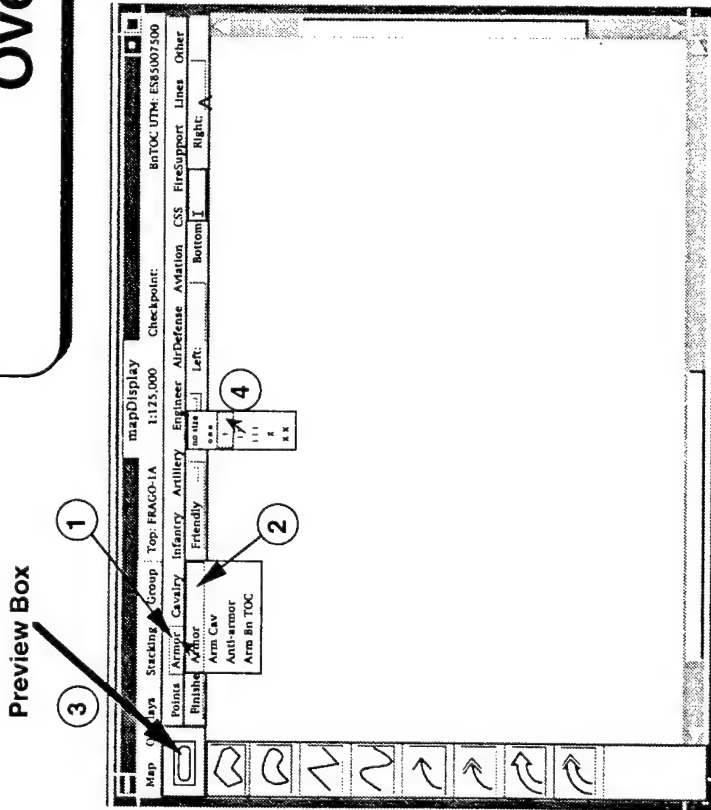
Labels

Type and return

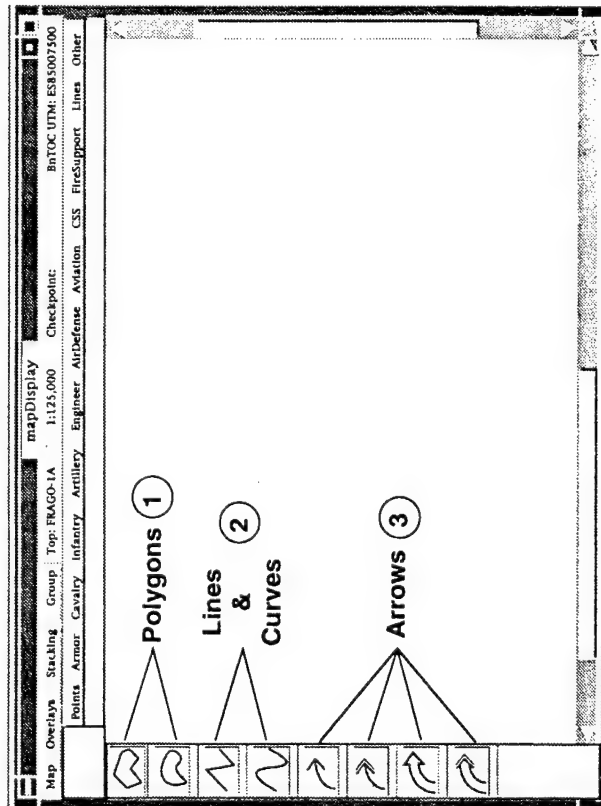
Attributes appear with unit symbol in Preview Box

Move cursor to desired location and click left mouse button

- ⑤ Unit symbol with defined attributes appears at designated location on map screen



Overlays



Creating Overlays (Cont.)

Creating Control Measures

Types:

- ① Polygons - used to designate areas, e.g., engagement areas, battle positions, objectives, etc.
- ② Lines and curves - used to designate linear control measures, e.g., phase lines, boundaries, FLOT, etc.
- ③ Arrows - used to designate direction of movement, e.g., axis of advance, direction of attack, routes, etc.

Overlays

Creating Overlays (Cont.)

Polygons and Lines:

① Select desired object

Icon appears in preview box
Attribute menu appears

② Define attributes

Line - thickness options

Status - dashed or solid line

Alignment - friendly / enemy

Unit size - size symbol

Label - area or line designation
(limited to 16 characters)

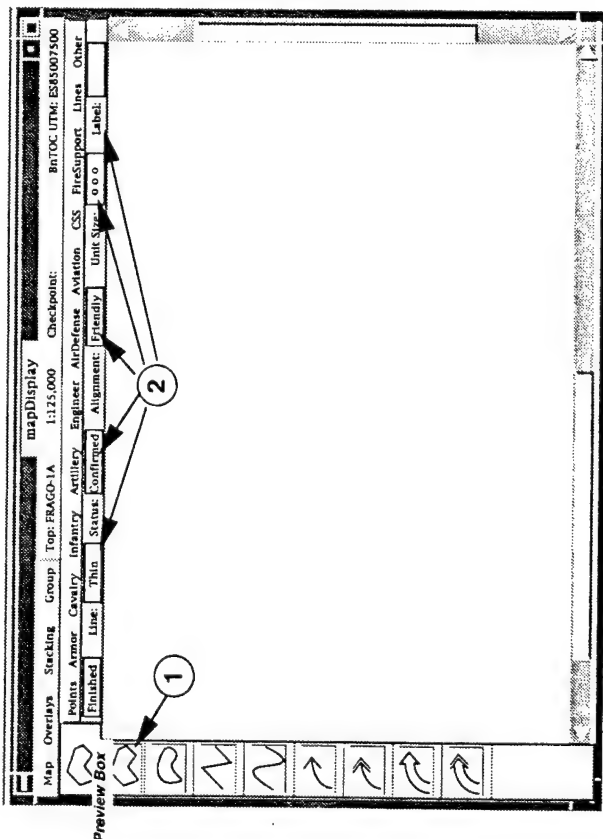
Draw polygon / line

Click on left button at desired location-
first point of polygon will be placed on
screen

Move to next location and click left
button again - continue placing
individual points

Click once on middle button to
terminate drawing -
area or line is now complete *

* NOTE: Do not overlay last point on first point



Overlays

Creating Overlays (Cont.)

Arrows

- 1 Select desired arrow type
- 2 Define attributes

Line - thickness options

Status - dashed or solid arrow

Alignment - friendly or enemy

Label - arrow designation (limited to 8 characters) →

Head (KM) - head width of arrow in KM (accepts fractional values, e.g., 2.5, 1.75) →

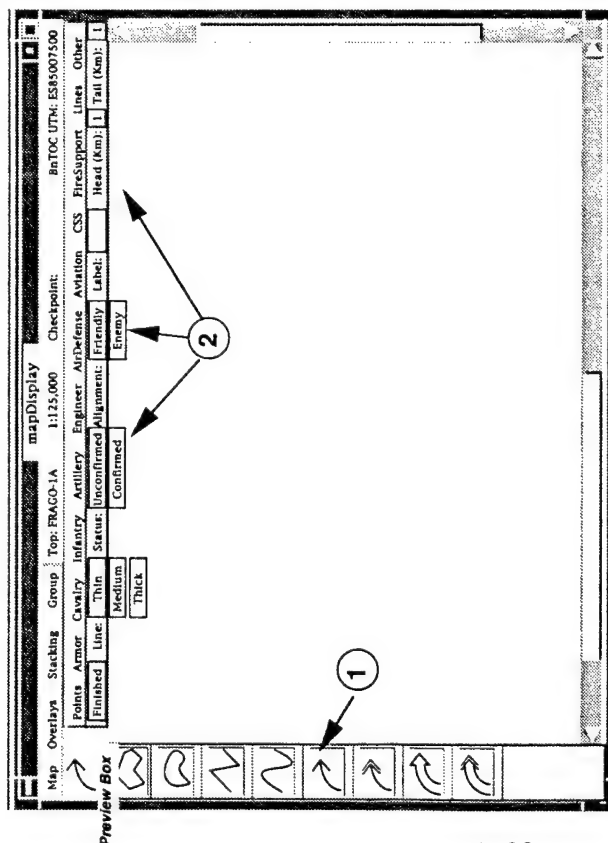
Tail (KM) - tail width in KM (applies to axis of advance arrows only) →

Draw arrow

Click on left button at desired location -
first point of arrow tail will be placed on screen

Move to next location and click on left button again - continue placing individual points

Click once on middle button to place last point - arrowhead



Overlays



Editing and Manipulating Objects

Selecting Objects

Single object:

- ① Click on object

Multiple objects:

- Click and hold on empty space near objects
- ② Drag cursor until box surrounds objects
- Release mouse button

Alternative *

Hold down <SHIFT> key and click on each object

Deselection of grouped objects:

Click on empty screen space

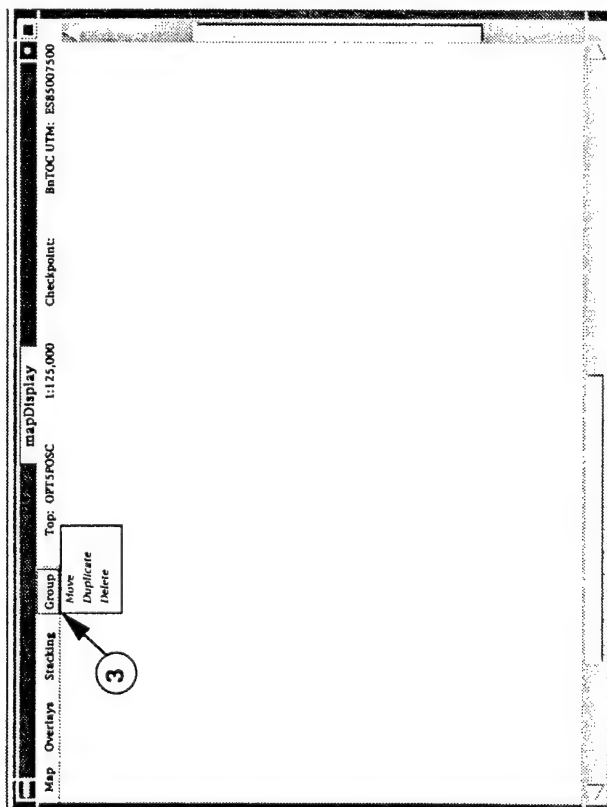
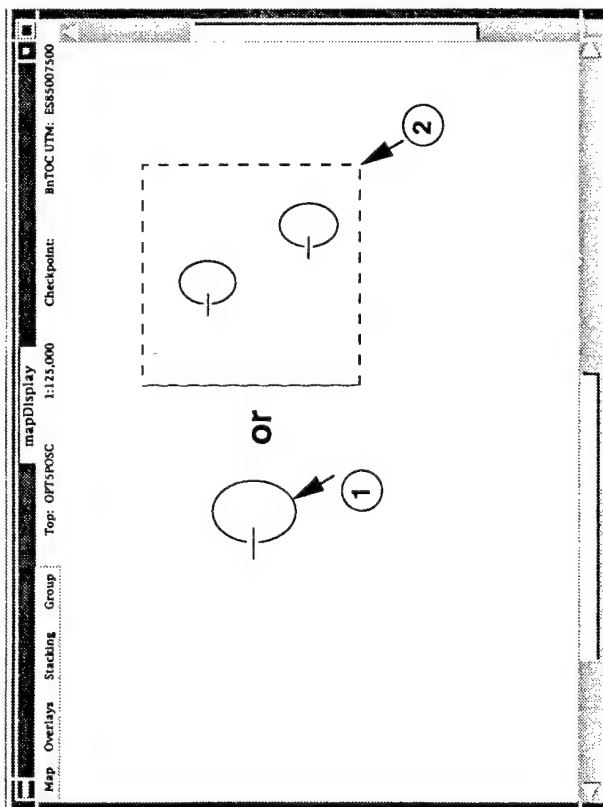
Alternative

Hold down <SHIFT> key and click on object(s) to be deselected

Operations

- ③ Select **Group** menu to move, duplicate, or delete a group of objects

* NOTE: alternatives are not graphically depicted in this Job Aid



Overlays

Editing and Manipulating Objects (Cont.)

Moving Objects

For a single object:

- ① Select **Move Object** from object menu
Place cursor at new location (do not click on object)
Click left mouse button
② *Object will drop on screen*

Alternative

Click on object with middle mouse button

Without releasing, drag object to new location

Release button to drop object

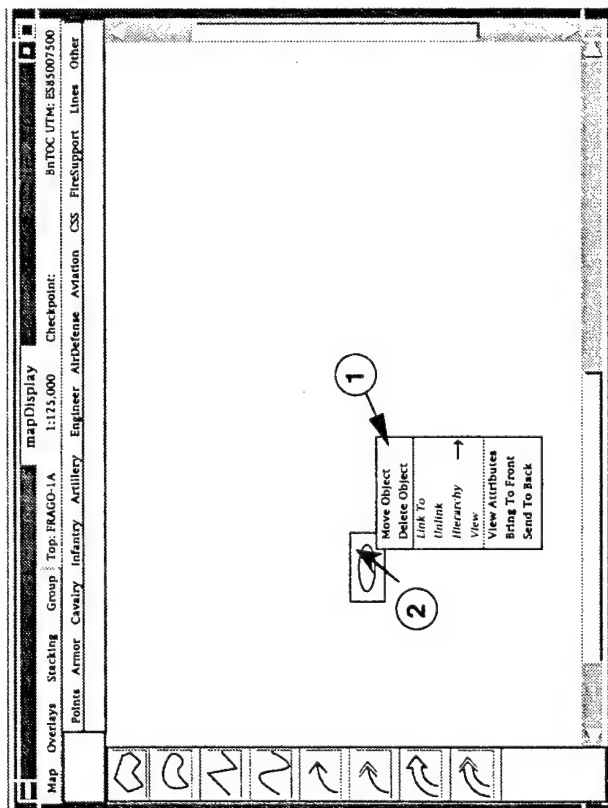
Alternative

For a group of objects:

Select **Move** from the **Group** menu
"Box" objects

Move cursor to desired location

Click left button to drop group of objects



Overlays

Editing and Manipulating Objects (Cont.)

Moving Lines

Same as Moving Objects

Duplicating Multiple Objects

- ① Select group of objects
- ② Select **Duplicate** from Group menu

Duplicate objects appear slightly offset

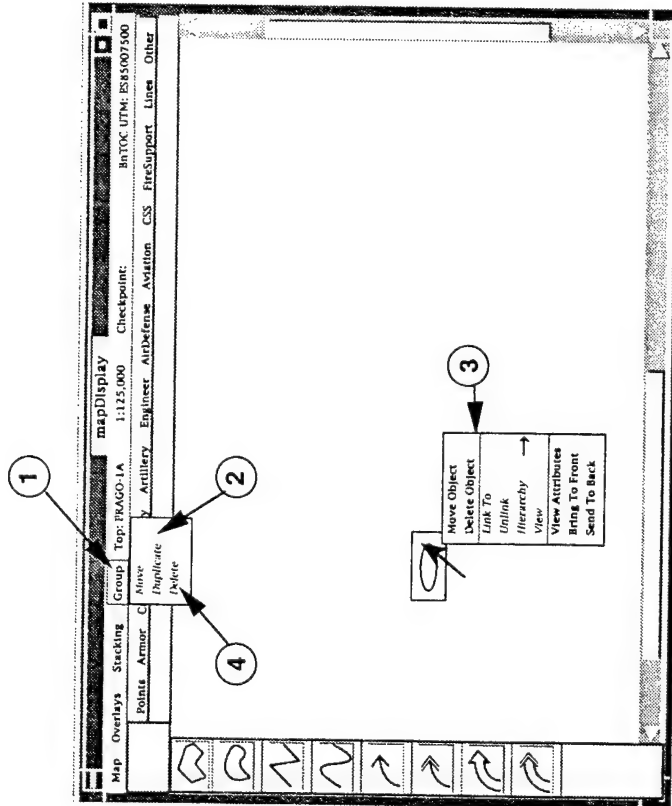
Deleting Objects and Lines

- ③ Single object: Select **Delete Object** or **Delete Line** from Object menu

System will request confirmation before deleting

- ④ Multiple Objects: Select **Delete** from Group menu

System will request confirmation before deleting



Overlays

Editing and Manipulating Objects (Cont.)

Changing Attributes

- 1 Click on object
Select **Edit Attributes** from Object menu

Attribute menu bar will appear

Enter desired changes (changes appear on screen, not in Preview Box)

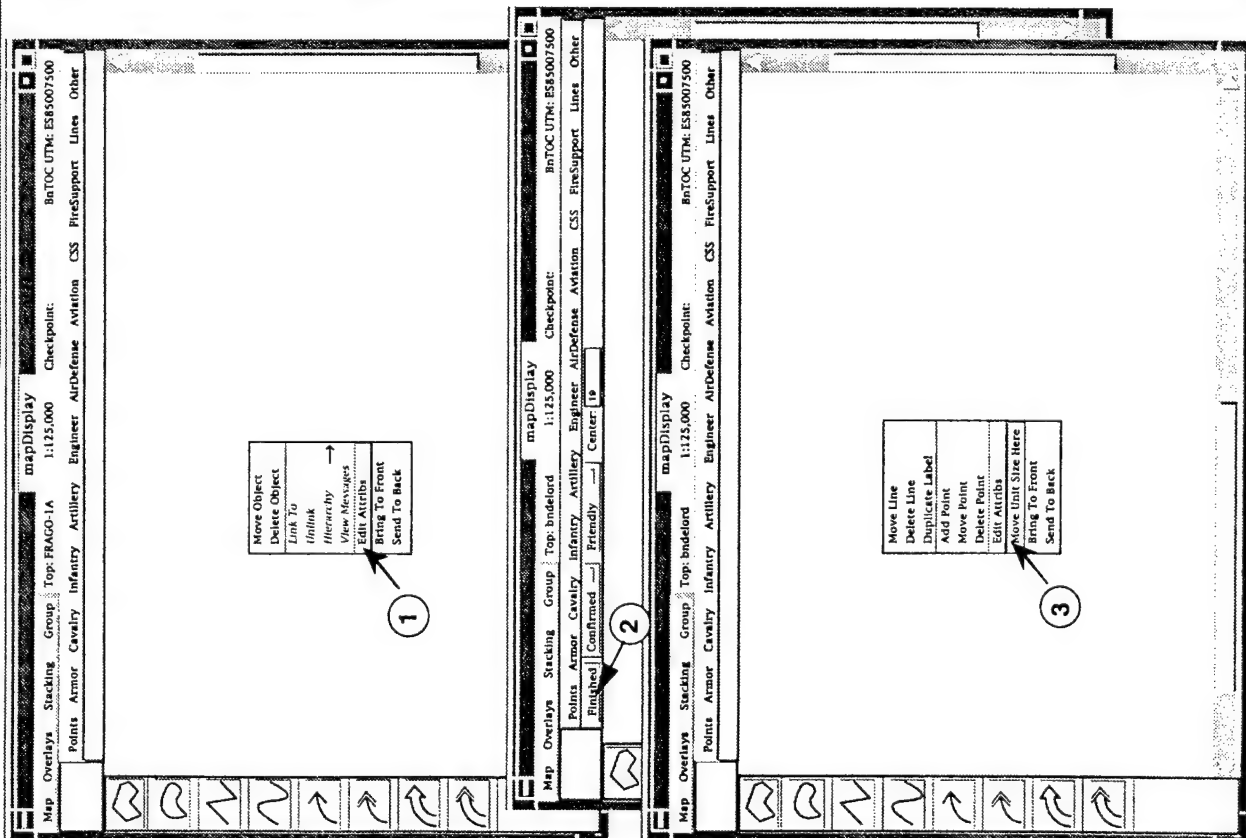
- 2 Click on **Finished** when complete

Moving Unit Size Designator (For Lines and Polygons only)

Click on desired location along line or polygon

- 3 Select **Move Unit Size Here** from Object menu

Unit size symbol will appear at new location



Overlays

Editing and Manipulating Objects (Cont.)

Changing Stacking Order

Click on object

- ① Select **Bring To Front** to place object on top of other objects
- ② Select **Send To Back** to place object underneath other objects

Linking Unit Symbols

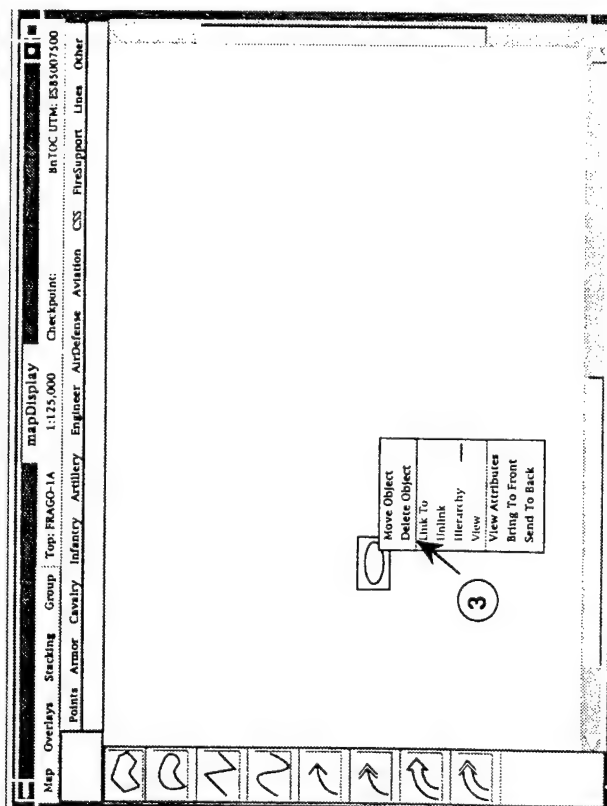
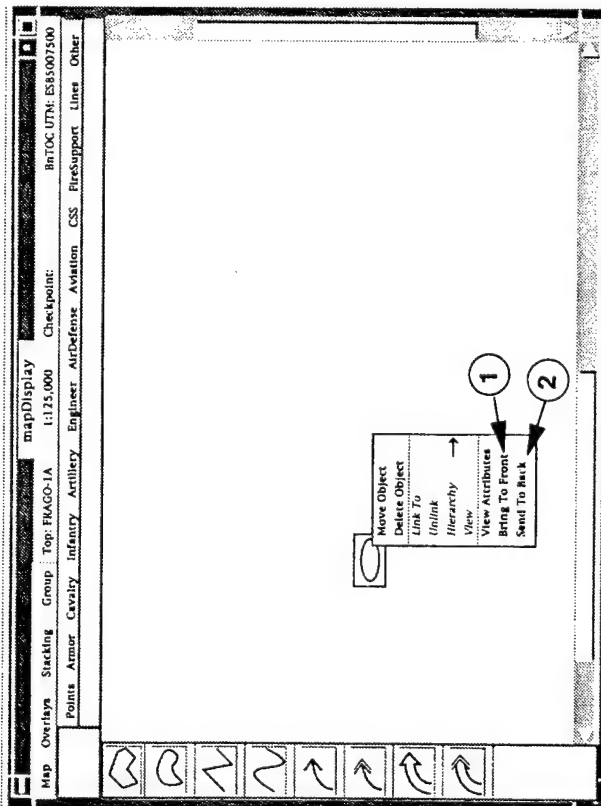
Click on symbol lower in the hierarchy

- ③ Select **Link To** from Object Menu

Move cursor to unit symbol desired to link to (an arrow attached to the first symbol appears as the cursor is moved)

Position arrow on unit symbol desired
Click left mouse button

Linked object will disappear



Overlays

Editing and Manipulating Objects (Cont.)

Viewing Linked Unit Symbols

Click on object

- ① Select Hierarchy from Object menu
(available only when object is linked)

Select desired layer *

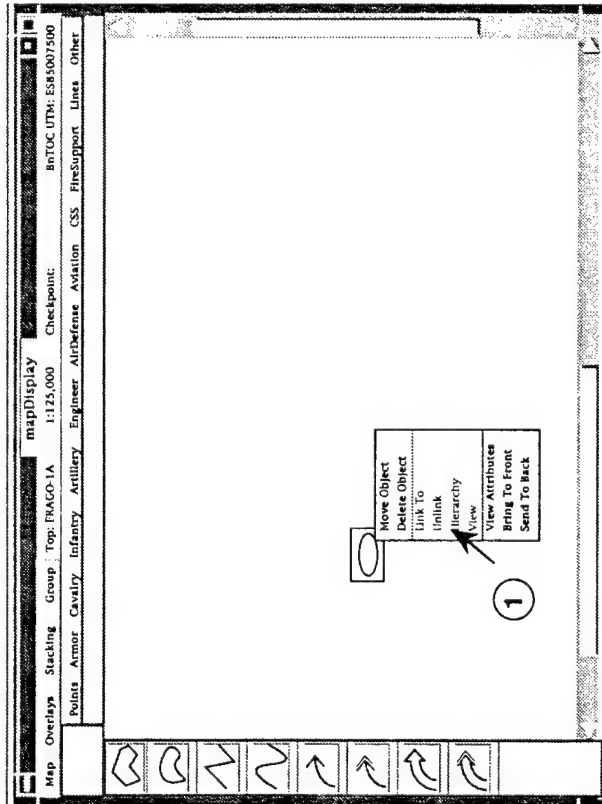
Higher levels -

Displays requested level and removes all subordinate levels

Lower Levels -

Removes superior level and displays all subordinates

* NOTE: Only one level of hierarchy may be viewed at a time



Overlays

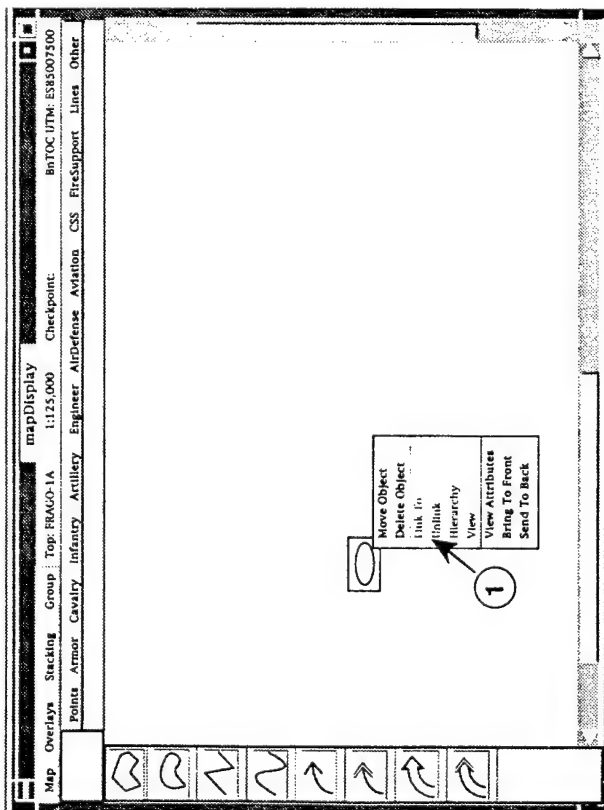
Editing and Manipulating Objects (Cont.)

Unlinking Unit Symbols

Click on object

- 1 Select **Unlink** from Object menu

Single unit symbol will appear on the screen



Overlays

Editing and Manipulating Objects (Cont.)

Control Measure Labels

Moving Labels

Position cursor on label

- ① Select **Move Label** from Object menu
- Move cursor to new location
- Click on left mouse button

Alternative

Click and hold middle mouse button
on label

Drag to new location

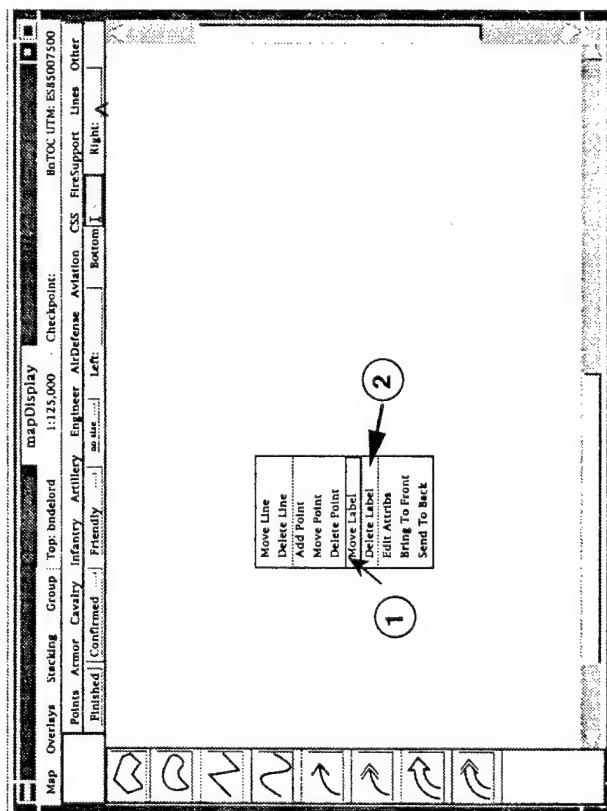
Release middle mouse button to drop
label

Deleting Labels

Position cursor on label

- ② Select **Delete Label** from Object
menu *

* NOTE: System does not ask for confirmation
before deleting



Overlays

Editing and Manipulating Objects (Cont.)

Control Measure Points

Adding points

Click on existing point on object

- ① Select **Add Point** from Object menu
New point will appear to the left of point clicked

Position cursor at desired location

Click left mouse button

New point will appear

Moving points

Position cursor over point on object

- ② Select **Move Point** from Object menu
Click on cursor at new location

Alternative

Click and hold middle mouse button
on desired point

Hold and drag point to new location

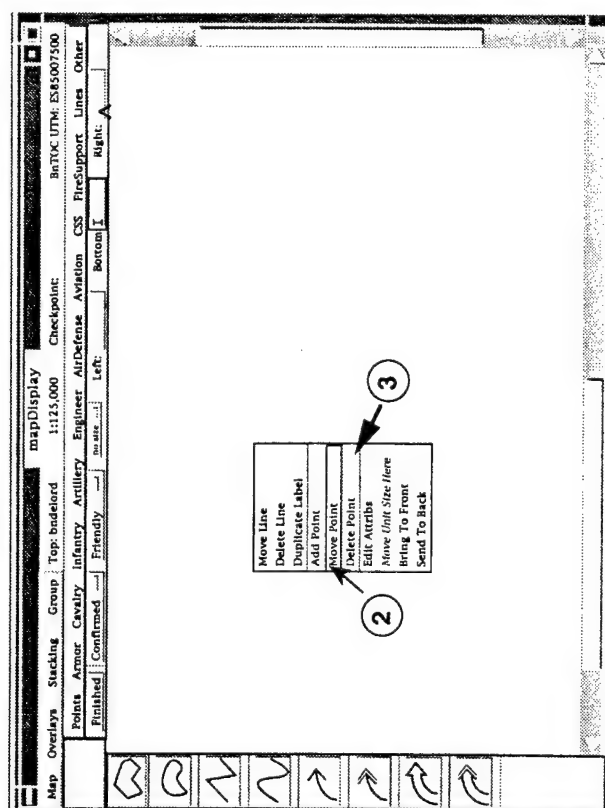
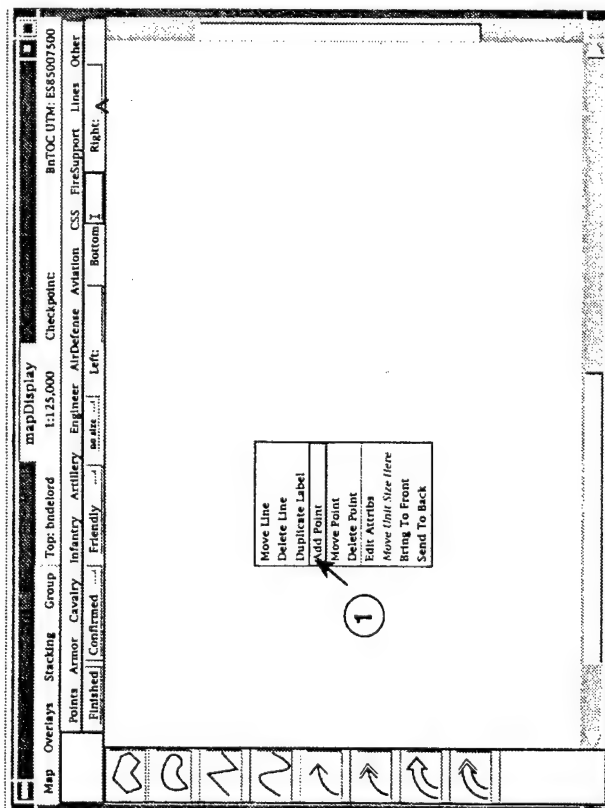
Release middle button to drop point

Deleting points

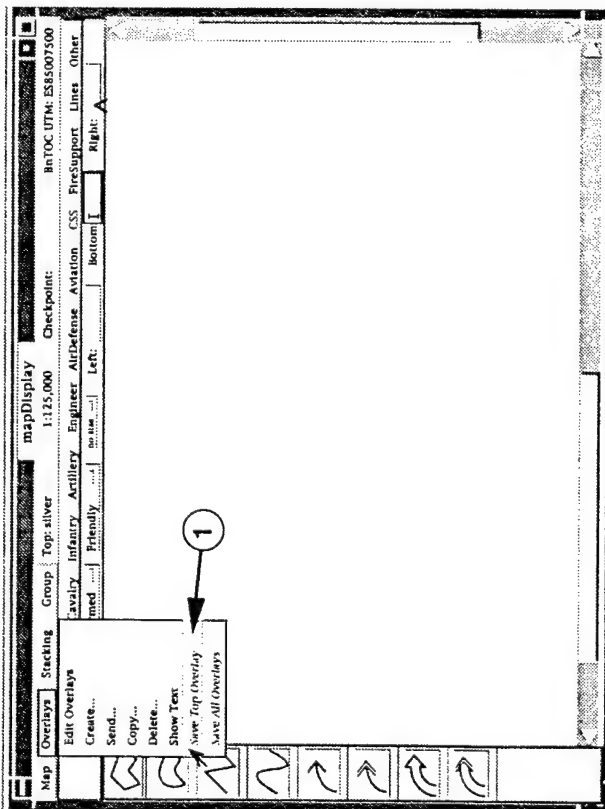
Position arrow over point on object

- ③ Select **Delete Point** from Object menu *

* NOTE: System will not ask for confirmation before deleting



Overlays



A-33

Saving Overlays

Saving Newly Created Overlays

- 1 Select **Save Top** from Overlays menu

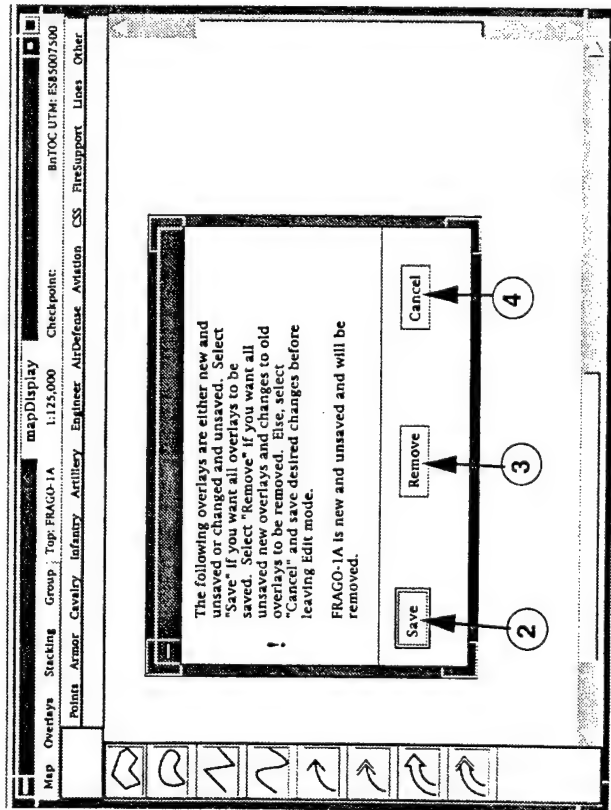
Overlay will be saved to disk and may be recovered at any time

Saving Edited Overlays

Select **Done Editing** from Overlays menu

System will prompt to:

- 2 **Save** : saves changes and returns to Normal Mode
- 3 **Remove** : removes changes and returns to Normal Mode
- 4 **Cancel** : returns to Edit Mode



Overlays

Other Overlay Operations

Editing

- 1 Select **Edit Overlays** from Overlays menu

Overlay edit features will appear

Make desired changes

- 2 Select **Done Editing** from Overlays menu

Deleting

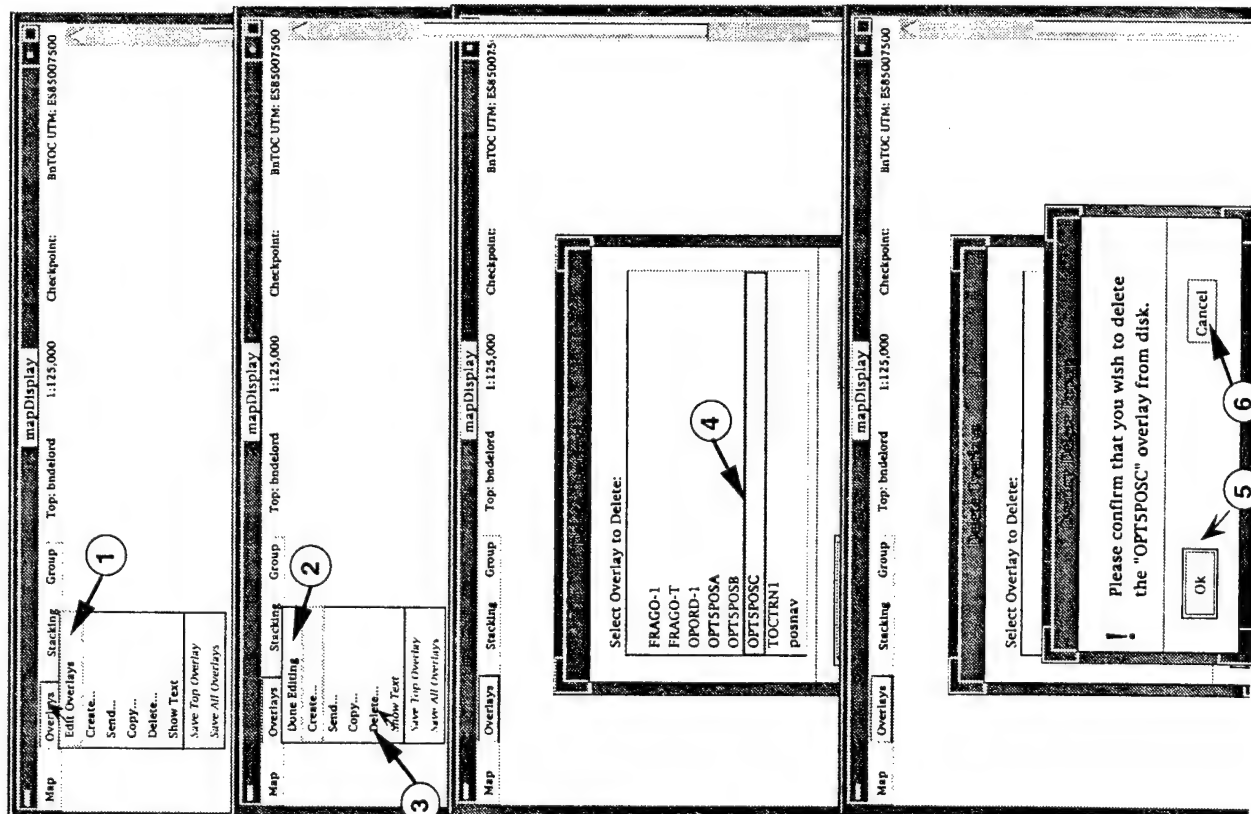
- 3 Select **Delete** from Overlays menu

- 4 Highlight desired overlay

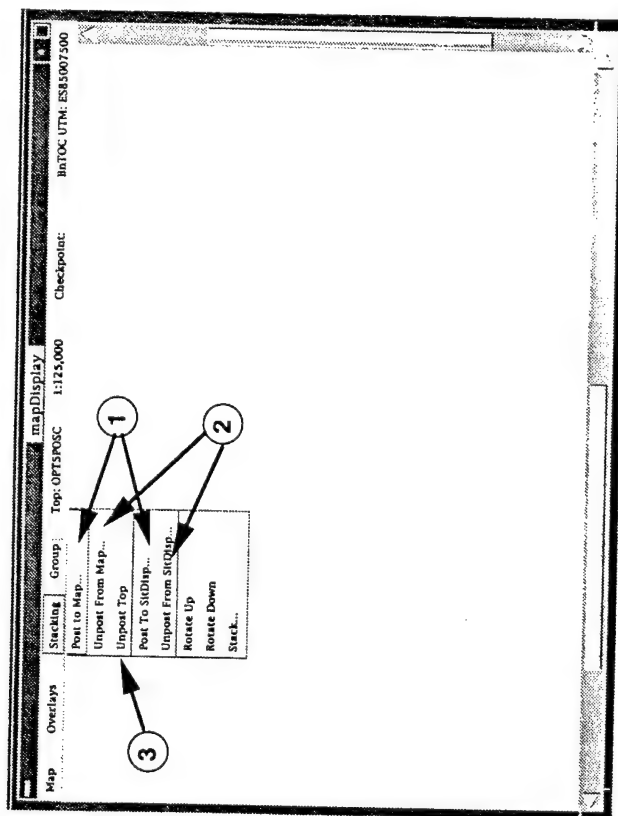
Click on **Delete** :

- 5 **OK** - to confirm deletion

- 6 **Cancel** - to return to Delete Overlays pop-up window



Overlays



Other Overlay Operations (Cont.)

Stacking (available only in Normal Mode)

Posting

- ① Select **Post To Map** or **Post To SitDisp** from Stacking menu

Highlight desired overlay

Click **Post** button

Overlay will appear as top overlay on the map screen or situation display

Click **Close** to return to main menu

Removing

- ② Select **Unpost From Map** or **Unpost From SitDisp**

Highlight desired overlay

Click **Unpost** button

Alternative

- ③ Select **Unpost Top** to delete top overlay

Overlays

Other Overlay Operations (Cont.)

Stacking (cont.)

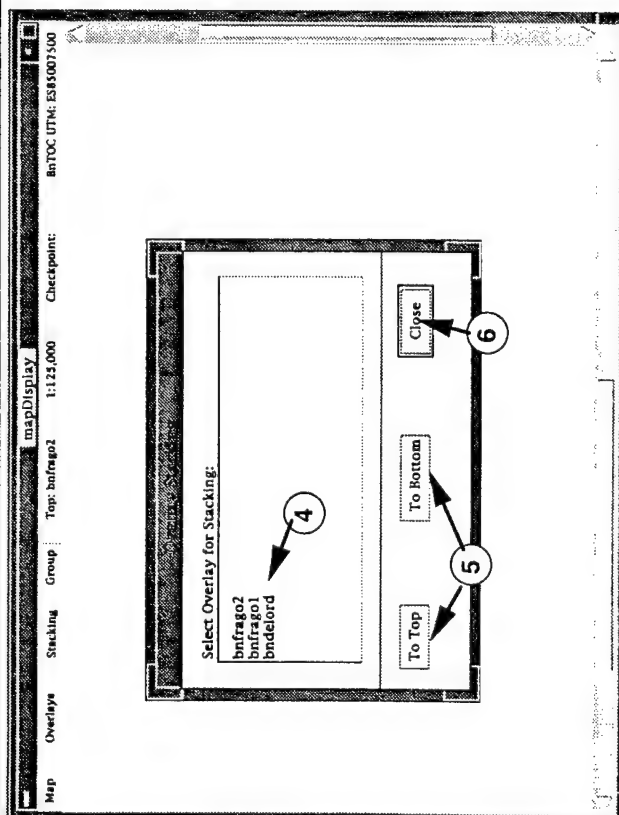
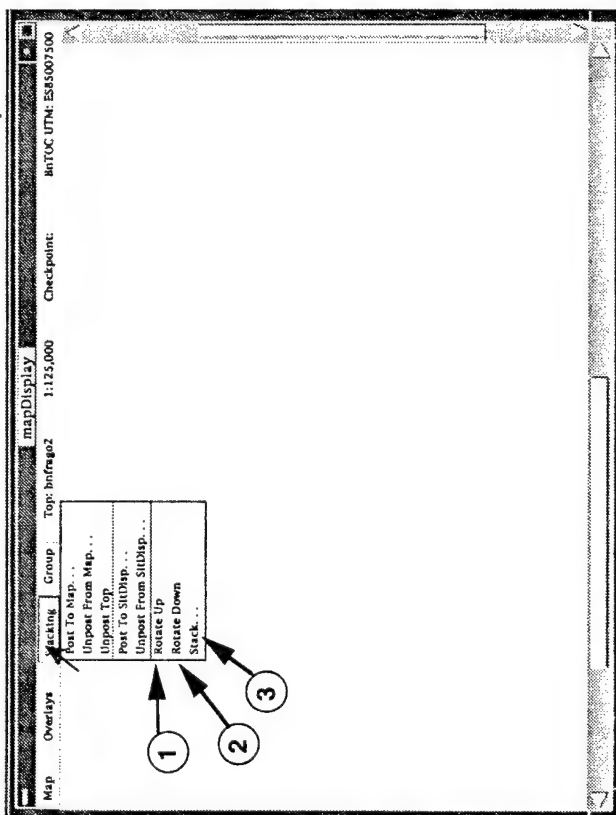
Changing stacking order

- ① **Select Rotate Up**: *moves top overlay to bottom of stack*
- ② **Select Rotate Down**: *moves bottom overlay to the top*
- ③ **Select Stack**: *provides list of overlays in stack*

④ Highlight desired overlay

- ⑤ **Select To Top** or **To Bottom** to move highlighted overlay as desired

- ⑥ **Select Close** when finished restacking



Overlays

Other Overlay Operations (Cont.)

Copying Overlays

① Select **Copy** from Overlays Menu

② *Listing of overlays will appear*

Click on Role box to view list of overlays available on other workstations

③ Highlight desired overlay

④ Click **Copy** button

⑤ Click **Close** to return to current window

Sending Overlays

⑥ Select **Send** from Overlays Menu

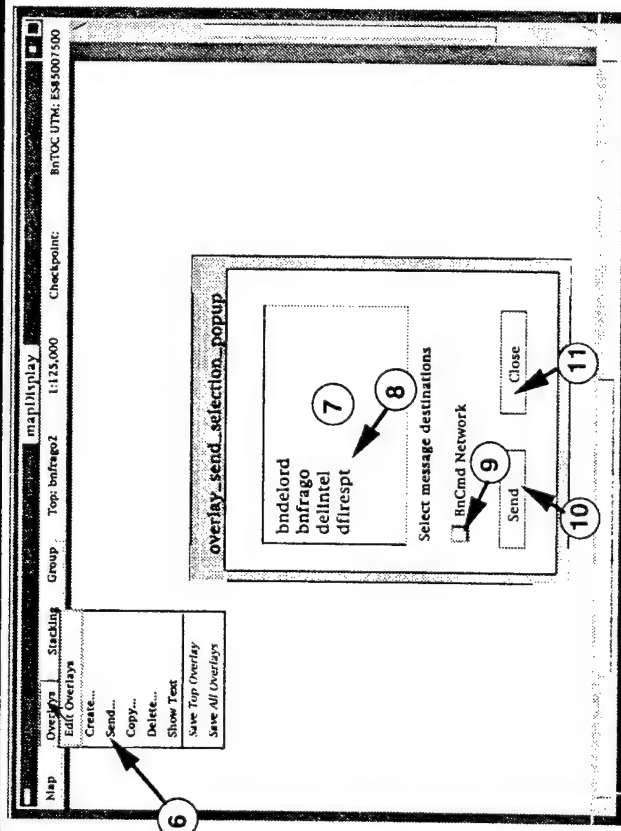
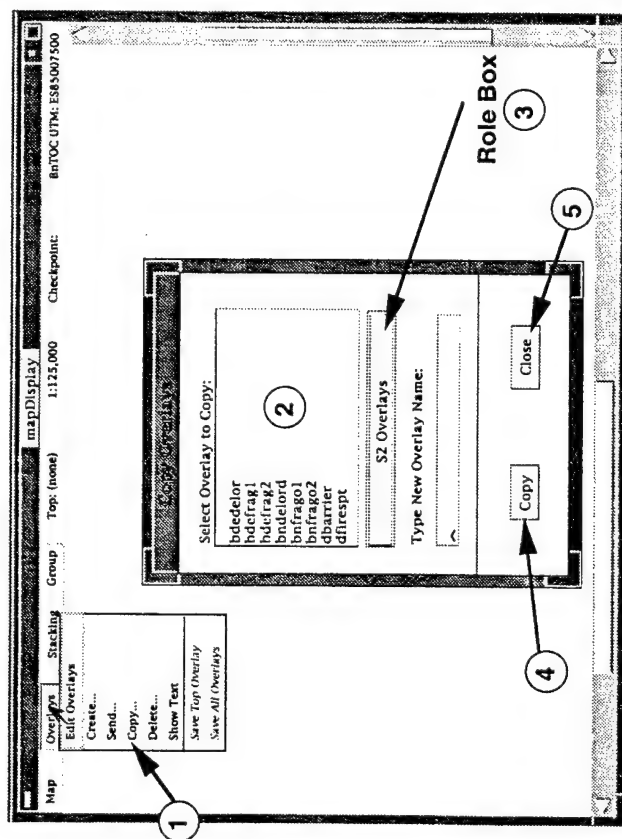
⑦ *Listing of overlays will appear*

⑧ Highlight desired overlay



⑨ Click on desired destination or network

⑩ Click **Send** button

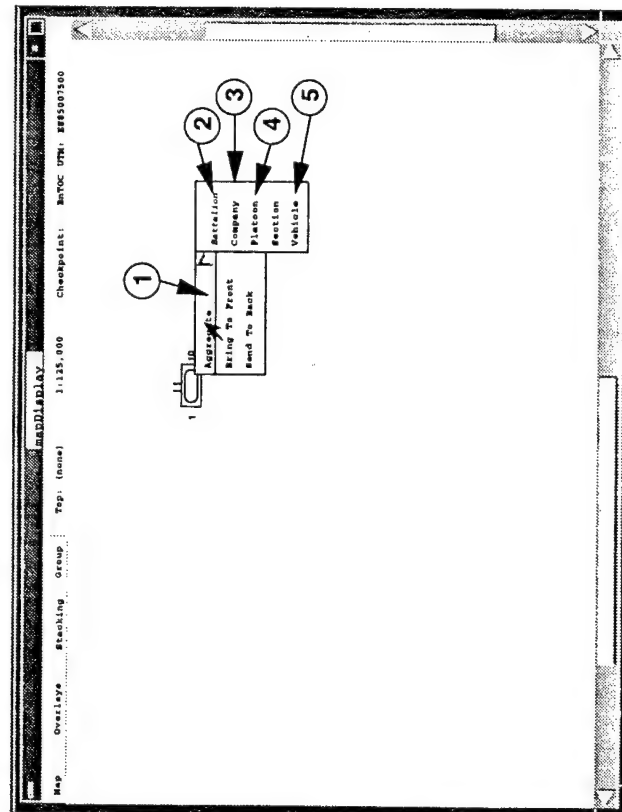
⑪ Click **Close** button to return to current window



ICONS

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Icons



Friendly Vehicles

POSNAV information automatically posts friendly vehicle icons to map displays

Aggregation / Deaggregation

Select **Aggregate** from Object menu

① Select desired option from pop-up menu

② **Battalion**: aggregates all battalion vehicles into a battalion unit symbol

③ **Company**: aggregates all company vehicles into a company unit symbol

④ **Platoon**: aggregates all platoon vehicles into a platoon unit symbol

⑤ **Vehicle**: deaggregates unit symbols into individual vehicles

Icons

Friendly Vehicles (Cont.)

Aggregation / Deaggregation (Cont.)

Map scales

Different aggregation maintained at each scale

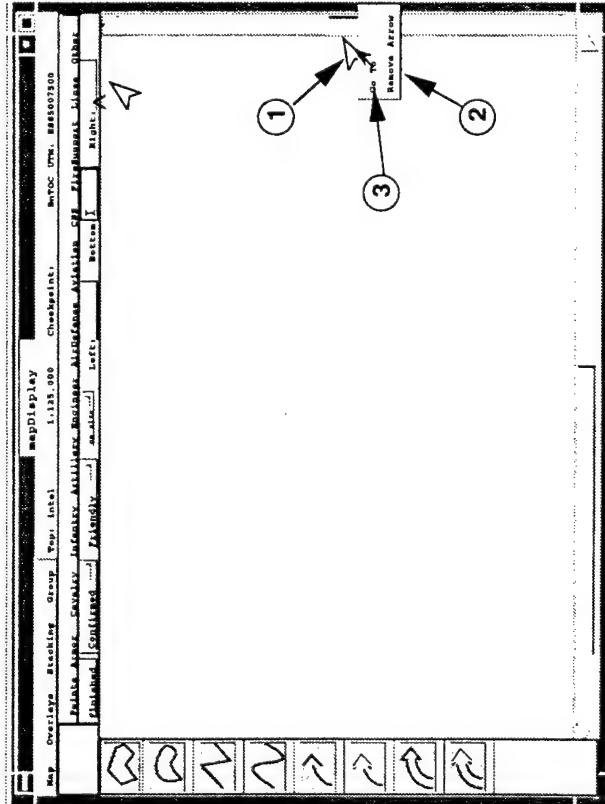
Vehicle icons automatically aggregated to map displays

Off-screen arrows

- ① Off-screen arrows point to report icons posted to map but outside the display area
- Click and hold on arrow and a pull down menu will appear
- ② Select **Remove Arrow** and arrow will disappear but report icon will remain *
- ③ Select **Go To** and map screen will center on report icon

* NOTE: Arrow will not return

Scale	Default Agg Level for Own Bn Units Upon Receipt	Default Agg Level for Other Bn Units Upon Receipt
1:25,000	Platoon	Company
1:50,000	Platoon	Company
1:125,000	Company	Company
1:250,000	Battalion	Battalion



Icons



Message Icons

Linking Message Icons to Unit Symbols *

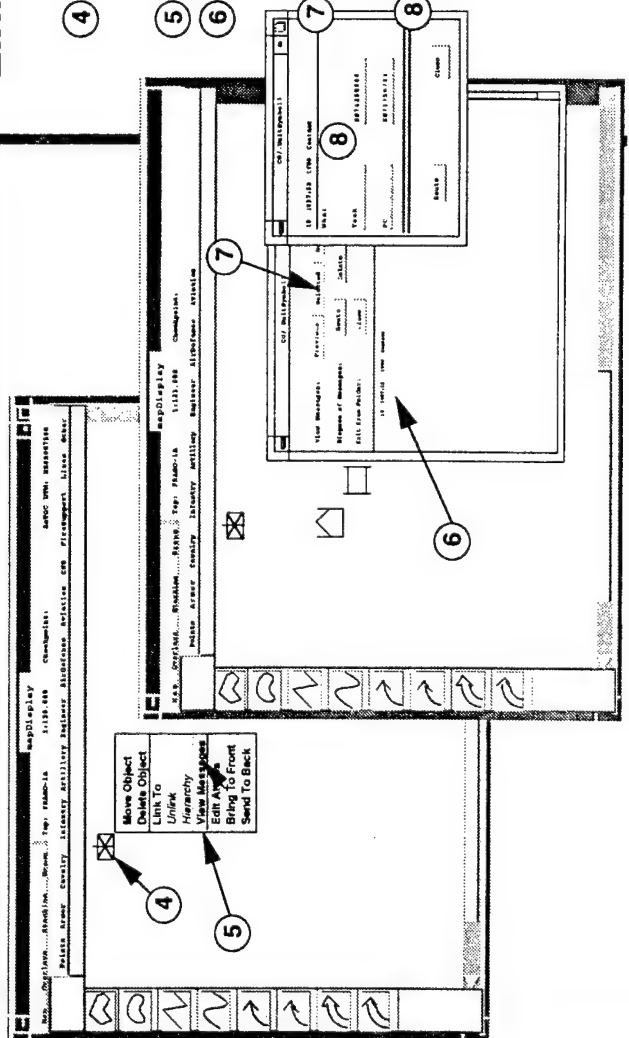
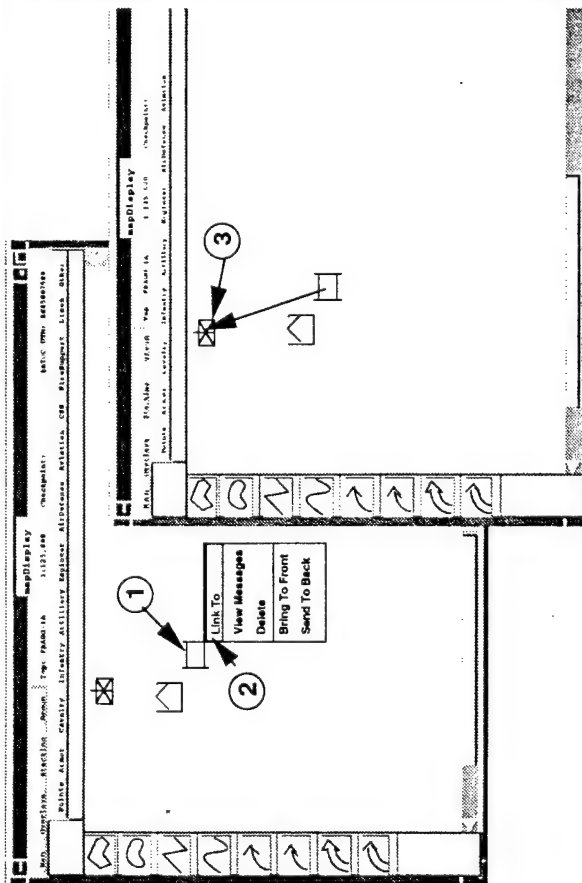
- ① Position cursor on message icon
- ② Select **Link To** from Object menu
- ③ Move cursor to unit symbol
- Click left mouse button

Icon will disappear, message icon is now linked to unit symbol

Linking Unit Symbols to Messages

- ④ Click on unit icon (only applies to icons posted from messages)
- ⑤ Select **View Messages**
- ⑥ Highlight desired message in pop-up menu
- ⑦ Click on **Selected**
- ⑧ Message view pop-up will display message

* NOTE: You must be in edit mode



Icons

Message Icons (cont.)

Viewing a Message

- ① Click on unit icon (only applies to icons posted from messages)
- ② Select **View Messages** from Object menu
- ③ Folder outline will appear on right hand monitor

Move folder outline to desired location on screen

- ④ Click left button to drop folder
- ⑤ Highlight desired message

Click on **Selected** option in the View Messages menu

Message view pop-up will display message

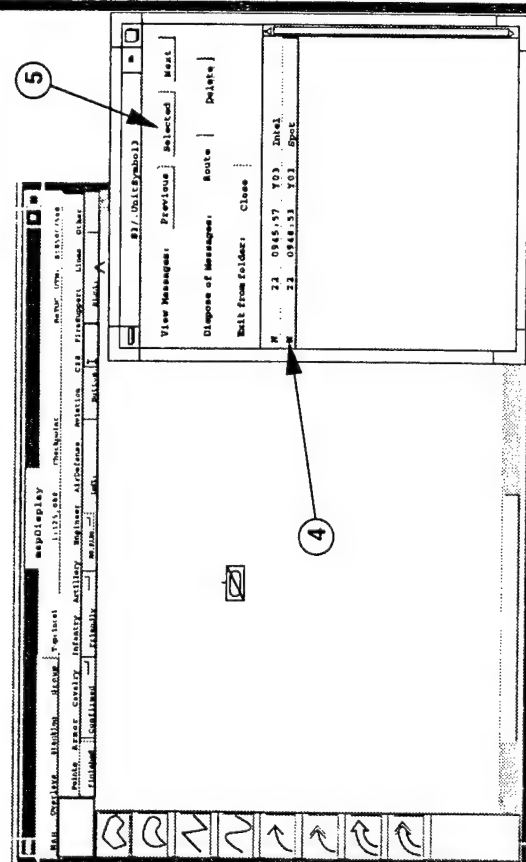
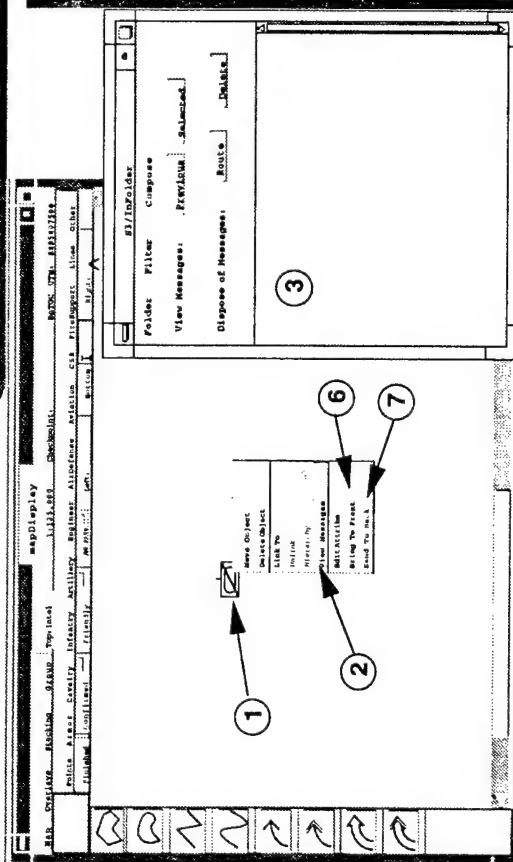
Changing Message Stacking Order

- ⑥ Select **Bring To Front**

Places selected icon on top of other objects

- ⑦ Select **Send To Back**

Places selected icon beneath other objects



MESSAGE MODULE

Contents

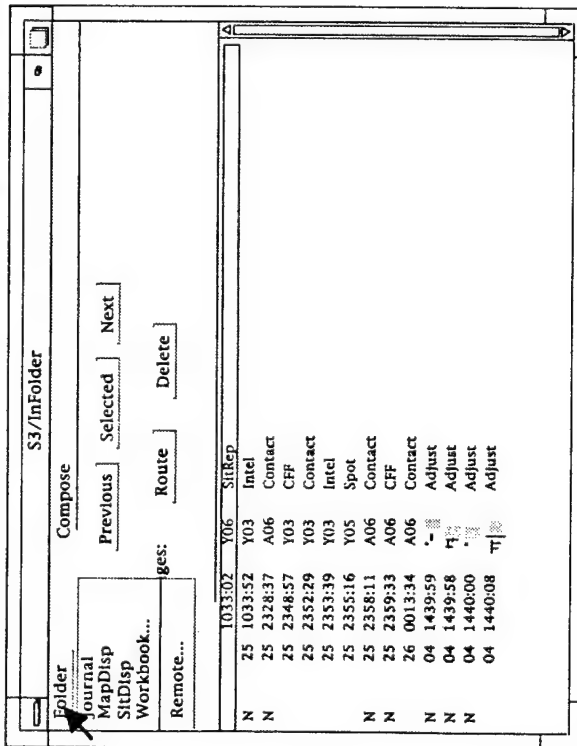


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Message Module



Features

Special folders

InFolder
Journal
Map Display
Situation Display
Remote

Workbook

Contains standard sections
More sections can be created

Messages

Receive
Filter
Compose
View

Message Module



Message Operations

Filtering Incoming Messages

- ① Select **Filter**
- ② Select **Receive Filter**
- ③ Toggle on/off desired message types (to filter or retain selected reports)
- ④ Click on **Apply** to activate filters and return to current folder

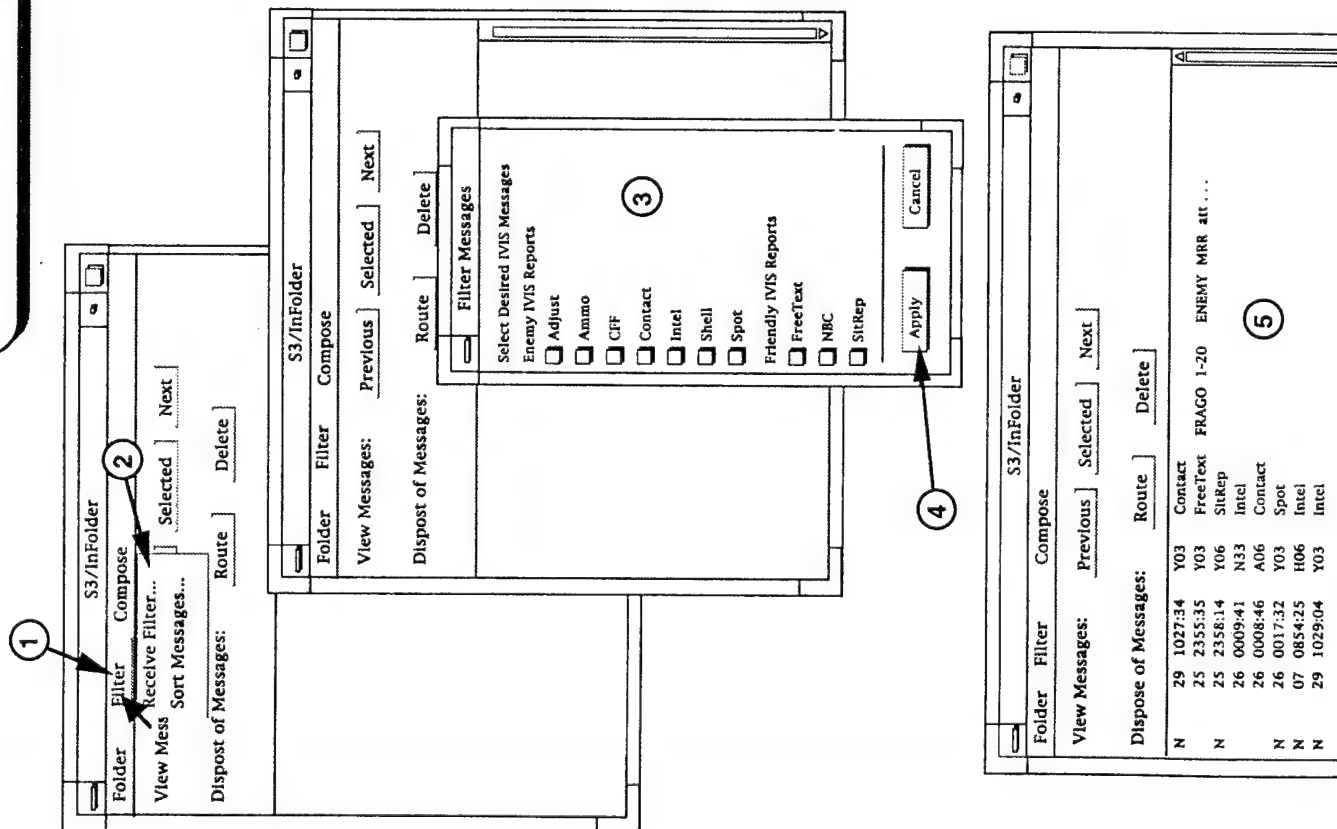
Receiving Messages

- ⑤ Messages are automatically placed in InFolder
Incoming messages remain in InFolder for five (5) minutes

If no action is taken, they are copied to the journal and deleted from the InFolder

Codes:

N = New (not yet viewed)
C = Component of an Aggregate Message
A = Aggregate Message



Message Module

Message Operations (cont.)

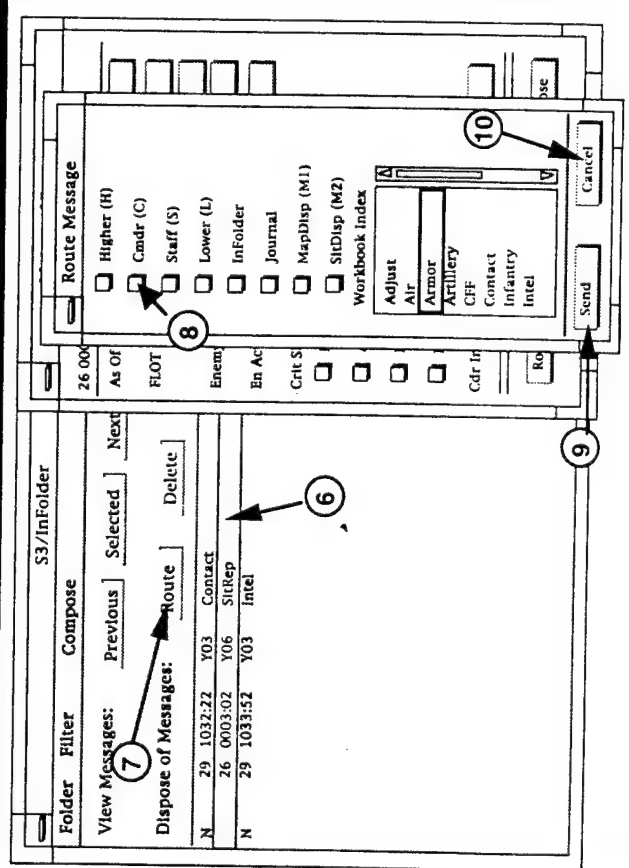
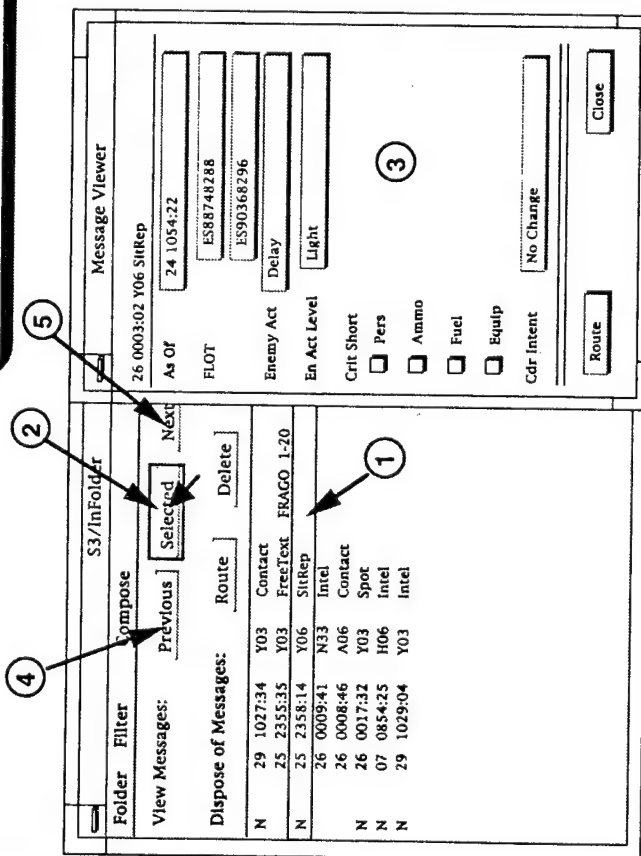
Viewing messages

- ① Click on message information line
- ② Click on **Selected** button
- ③ *Message Viewer box displays message **
- ④ Clicking on **Previous** button will display next earlier message in Message Viewer
- ⑤ Clicking on **Next** button displays next later message

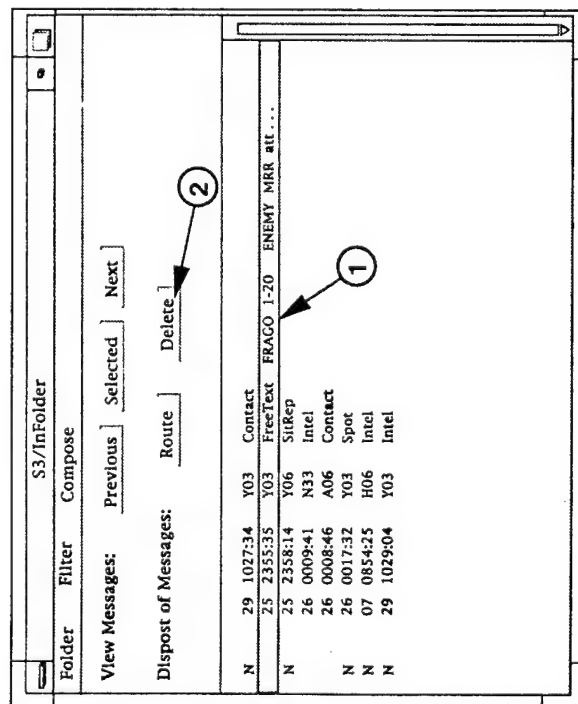
Routing messages

- ⑥ Select message from InFolder
- ⑦ Click on **Route** button
- ⑧ Click on **Route** button in Message Viewer
- ⑨ Click on desired destination(s)
- ⑩ Click **Send** to send message and return to current folder
- ⑪ Click **Cancel** to cancel and return to current folder

* NOTE: Double clicking on message line will activate message viewer



Message Module



Message Operations (cont.)

Deleting messages

① Highlight message line

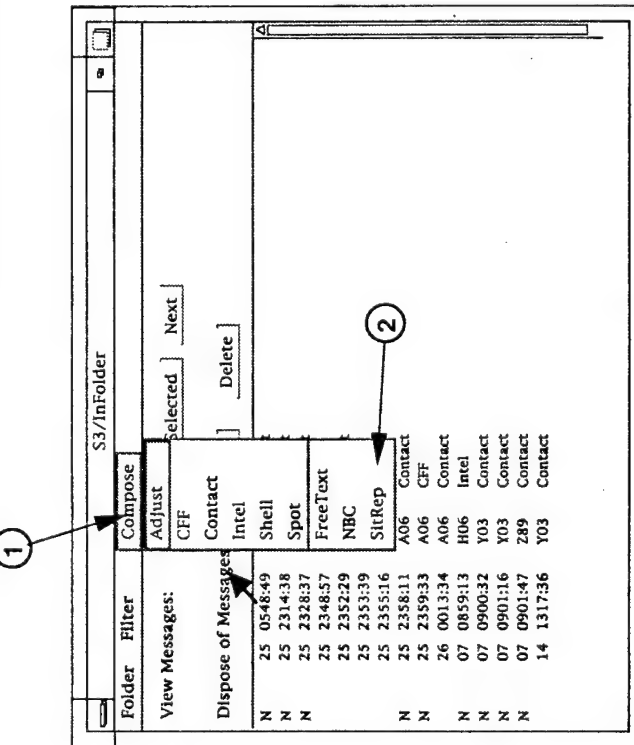
② Click on **Delete** in InFolder

*Deletes message from current folder **

* NOTE: System does not request confirmation

Deleting message from Map Display or Sit Display folders automatically deletes icon from Map Display or Situation Display

Message Module



Message Operations (cont.)

Composing messages

General procedures

- ① Click and hold on **Compose** in InFolder menu bar
Drag to desired report and release mouse button
Enter information (example on next page):
Response menus
Destination options
Location fields
- ②

Type UTM coordinates and return ↵

Alternative

Highlight location box(es) and click on map location

*Icon appears on map
Icon disappears when message is sent*

To post to map display/sit display,
select copy/post message to Map
Display/Sit Display folders

Message Module

Message Operations (cont.)

Composing messages (cont.)

Sample procedures: SITREP

- ① Select **SitRep**
- ② Click on **FLOT** boxes (left then right in direction of enemy Click on Map Display at desired locations
- ③ Click on **Enemy Act** box Select appropriate activity

S3/

Compose	Sel
Adjust	
CFF	
Contact	
Intel	
Spot	
FreeText	
NBC	
SitRep	①

Message Composer

Situation Report

FLOT

②

Enemy Act

En Act Level

Crit Short

Pers

Ammo

Fuel

Equip

No Change

Cdr Intent

As Of

Originator

Route

Cancel

Message Composer

Situation Report

FLOT

③

Enemy Act

En Act Level

Crit Short

Gnd Atk

Air Atk

Fire

Defend

Delay

Recon

Pers

Ammo

Fuel

Equip

-20

Y03

Route

Cancel

Message Composer

Situation Report

FLOT

④

Enemy Act

En Act Level

Crit Short

Gnd Atk

Light

Medium

Heavy

Pers

Ammo

Fuel

Equip

Cdr Intent

As Of

Originator

Route

Cancel

Message Composer

Situation Report

FLOT

⑤

Enemy Act

En Act Level

Crit Short

Gnd Atk

Medium

Pers

Ammo

Fuel

Equip

Cdr Intent

As Of

Originator

Route

Cancel

Message Composer

Situation Report

FLOT

⑥

Enemy Act

En Act Level

Crit Short

Gnd Atk

Medium

Pers

Ammo

Fuel

Equip

Cdr Intent

As Of

Originator

Route

Cancel

- ④ Click on **En Act Level**
Select appropriate level
- ⑤ Click on appropriate **Crit Short** buttons
- ⑥ Click on **Cdr Intent** box
Select appropriate entry
- ⑦ Click on **As Of** box
Select correct time
- ⑧ Route message

Message Composer

Situation Report

Enemy Act

En Act Level

Crit Short

Pers

Ammo

Fuel

Equip

Cdr Intent

As Of

Originator

Route

Cancel

FOLDERS AND WORKBOOK

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Managing Folders and Workbook - A-51

Folders A-51

Workbook A-52

Remote Workstations A-53

Folders and Workbook



Managing Folders and Workbook

Folders

All folders are accessed from the InFolder

Journal: maintains a chronological record of events

MapDisp: posts information on map display

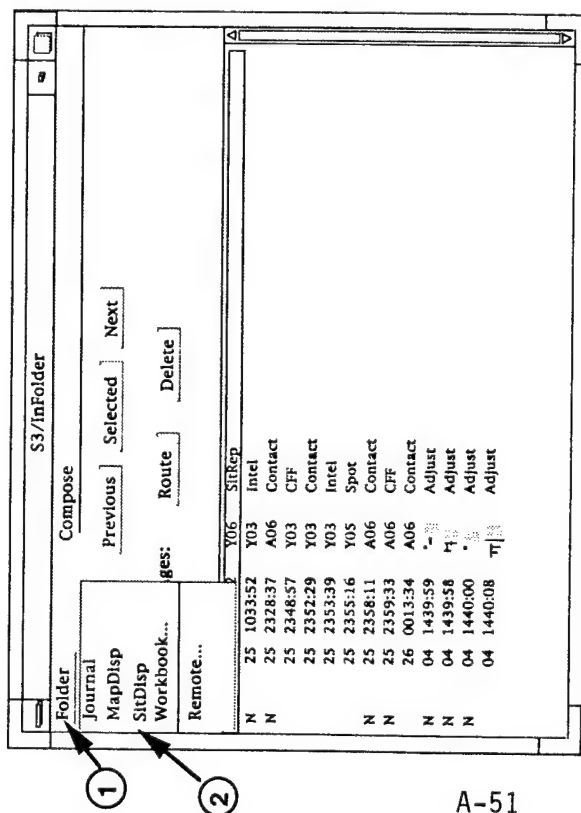
Sit Display: posts information on the situation display

To access folders:

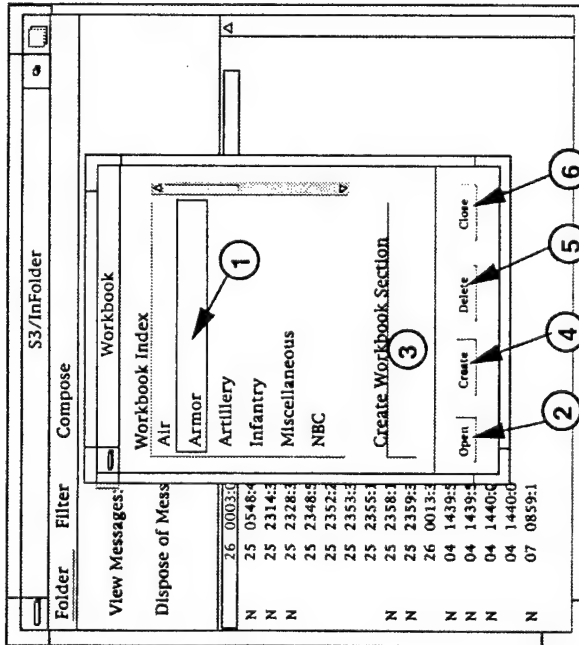
- ① Select Folder menu
- ② Click on desired folder

You may:

View messages
Route messages
Copy messages
Delete messages



Folders and Workbook



Managing Folders and Workbook (cont.)

Workbook

- ① Click on **Workbook** in Folder menu
Select workbook title from Workbook Index

To open:

- ① Highlight workbook title from Workbook Index
 - ② Click on **Open** button
Opens selected workbook
- View and route messages

To create:

- ③ Click on **Create Workbook Section**
Enter new workbook title and return ↵
- ④ Click on **Create** button

To delete:

- Click on **selected** workbook
- ⑤ Click on **Delete** button *

To close:

- ⑥ Click on **Close** button

* NOTE: System does not request confirmation

Folders and Workbook

Managing Folders and Workbook (cont.)

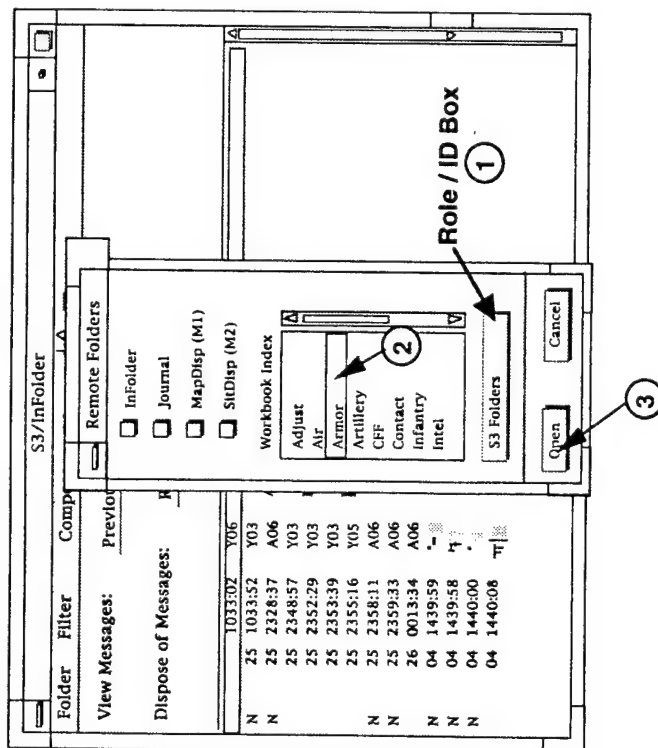
Remote workstations

Allows access to other workstation folders

Select **Remote** from **Folder** menu

To select a different workstation:



- ① Click on **Role/ID** box until desired workstation name appears
- ② Highlight desired folders
- ③ Select **Open** to view desired folders



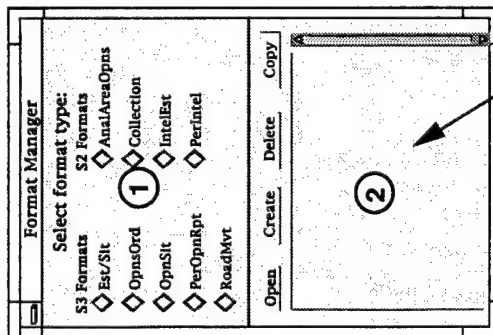
FORMAT MODULE

Contents

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 Format Manager	A-55
Format Manager Window	A-55
 Format Viewer	A-56
Creating Reports	A-56
Saving Reports	A-56
Editing Reports	A-57
Copying Reports	A-57
Deleting a Report	A-58
Leaving the Format Viewer	A-58

Format Module



Format Manager

Format Manager Window

- ① Lists available formats
- ② Selection of a format displays all available reports in List Box

You may:

Create a new report

Open and edit, delete, or copy an existing report

You cannot:

Create or delete reports whose formats are not active on your workstation (e.g. the S2 workstation cannot create nor delete S3 format reports)

Format Module



Format Viewer

Creating Reports

Select desired report type (e.g. Opns Ord)
Click on **Create** button
Type report name in dialog box
Click on **Create**

① The **FORMAT VIEWER** will appear

② The word "new" appears under the report title

③ To change text, click in window and type changes

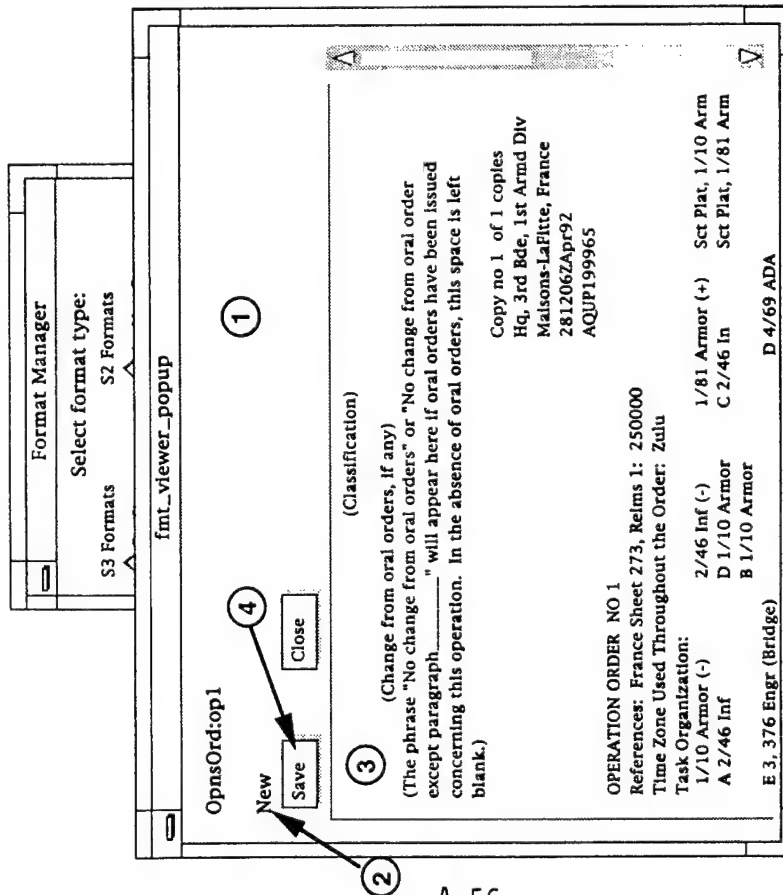
The word "new or changed" appears under the report title

Saving Reports

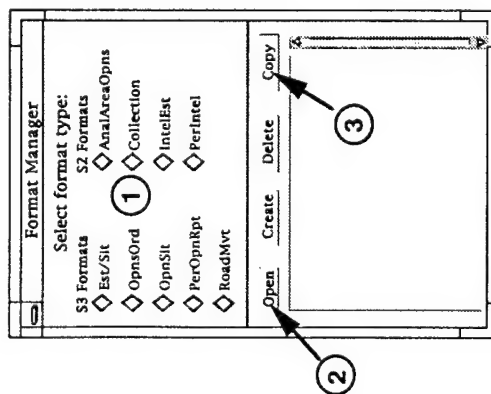
④ Click on **Save** button

The word "saved" appears under the report title

Report will be saved on workstation disk and can be retrieved at any time



Format Module



Format Viewer (cont.)

Editing Reports

- ① Click on format type in Format Manager window
Select desired report
Click on **Open**
Change text as desired
Save or **Close** without saving

Copying Reports

Click on format type in Format Manager window

Select desired report

- ③ Click on **Copy** box

Enter new report name

Click on **Copy** button

A copy of the old report with a new name is made

Format Module

Format Viewer (cont.)

Deleting a Report

- ① Click on format type in Format Manager window

Select desired report

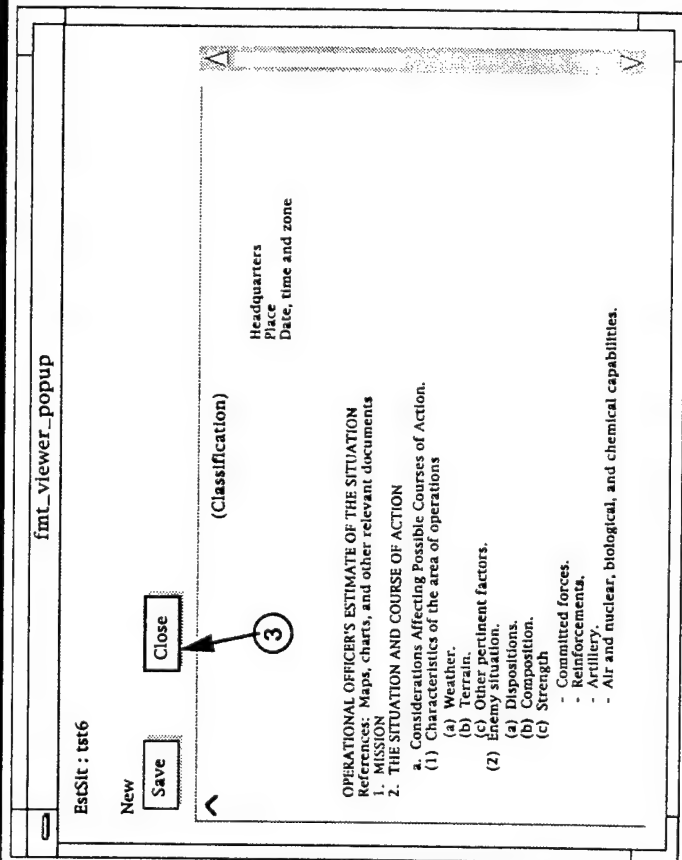
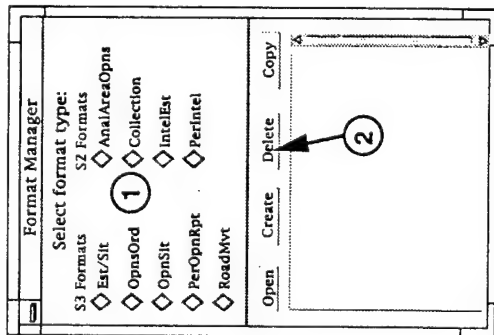
- ② Click on **Delete** button

System will request confirmation before deleting

Leaving the Format Viewer

- ③ Select **Close**



Returns to Format Manager window



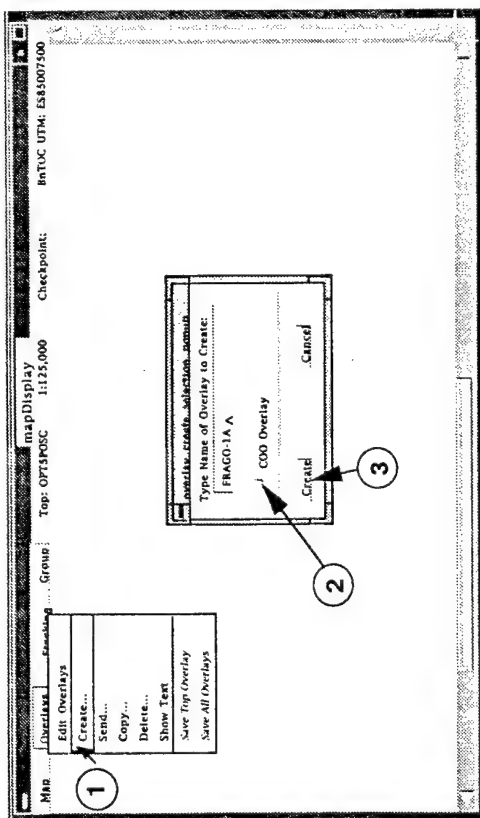
CONCEPT OF OPERATIONS (COO) MODULE

Contents

Page

 COO Overlay	A-60
Creating the COO Overlay	A-60
Importing a Task Organization	A-60
Adding Phases	A-61
Setting Current Phase	A-62
Deleting Phases	A-62
 COO Operations	A-63
Showing and Hiding Phases	A-63
Briefing COO Overlays	A-63

Concept of Operations Module



Concept of Operations (COO) Overlay

Creating the COO Overlay

- ① Select **Create** from the Overlays menu
- ② Click on **COO** after typing in name
- ③ Click on **Create**
- ④ A set of special COO commands replaces the normal overlay editing menus

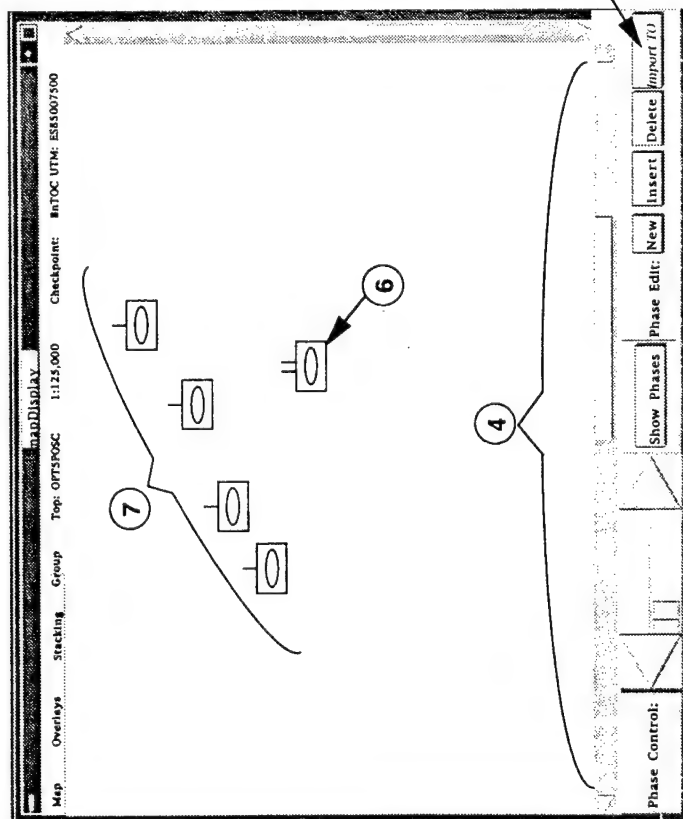
Importing a Task Organization *

- ⑤ Click on **Import TO**
A battalion symbol will appear
- ⑥ Click on battalion symbol with left button
A pull-down menu will appear

Select desired echelon from the pull-down menu (usually company)

- ⑦ *Company symbol icons will appear*

* NOTE: A battalion symbol is automatically generated when the COO is created. Do not import a TO unless an additional battalion is desired.



Concept of Operations Module

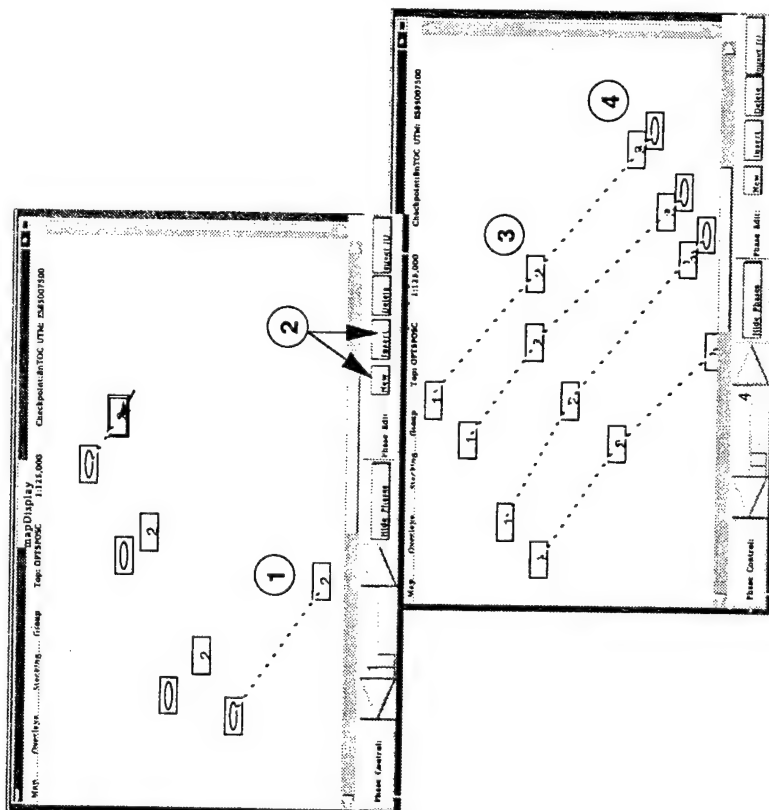
COO Overlay (cont.)

Adding Phases

- ① Position unit icons as desired
- ② Select **New** or **Insert** from the Phase Edit menu line

New phase icons for all units will be slightly offset from original icons

- ③ Move numbered icons to next desired location
- ④ Repeat process until all phases are completed



Concept of Operations Module

COO Overlay (cont.)

Setting current phase

- ① Add a new phase using **New** or **Insert** command

- ② The newly created phase becomes the current phase

Alternative

- ③ Use the **Select** slide or buttons to select another phase

- ④ Selected phase becomes the current phase

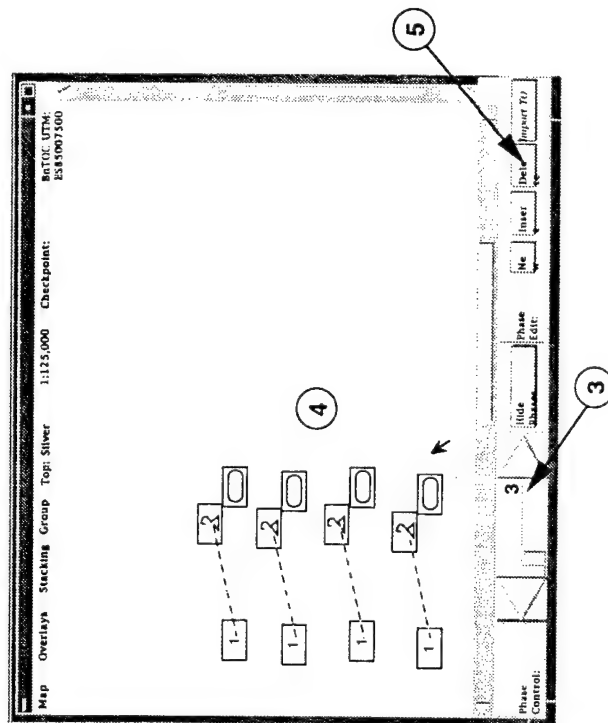
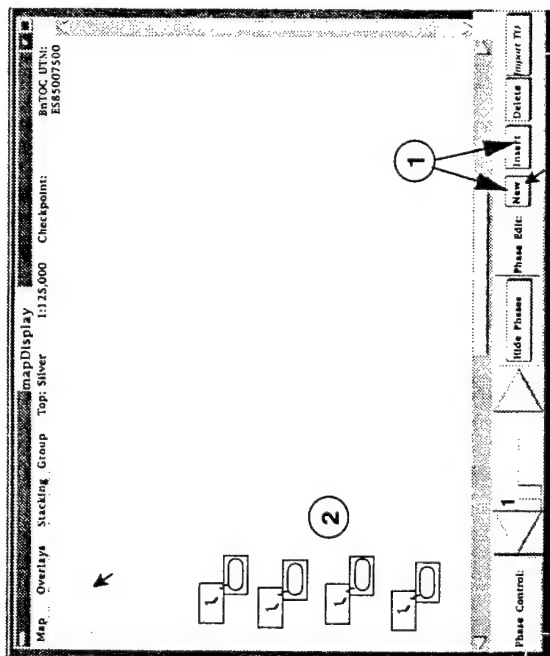
Deleting phases

- ⑤ Select **Delete** button

Deletes all icons from current phase

Alternative

Select **Delete** button on Object Menu



Concept of Operations Module



COO Operations

Showing and hiding phases

① Toggle on Hide Phases

Ghost icons will disappear
Only current phase is visible

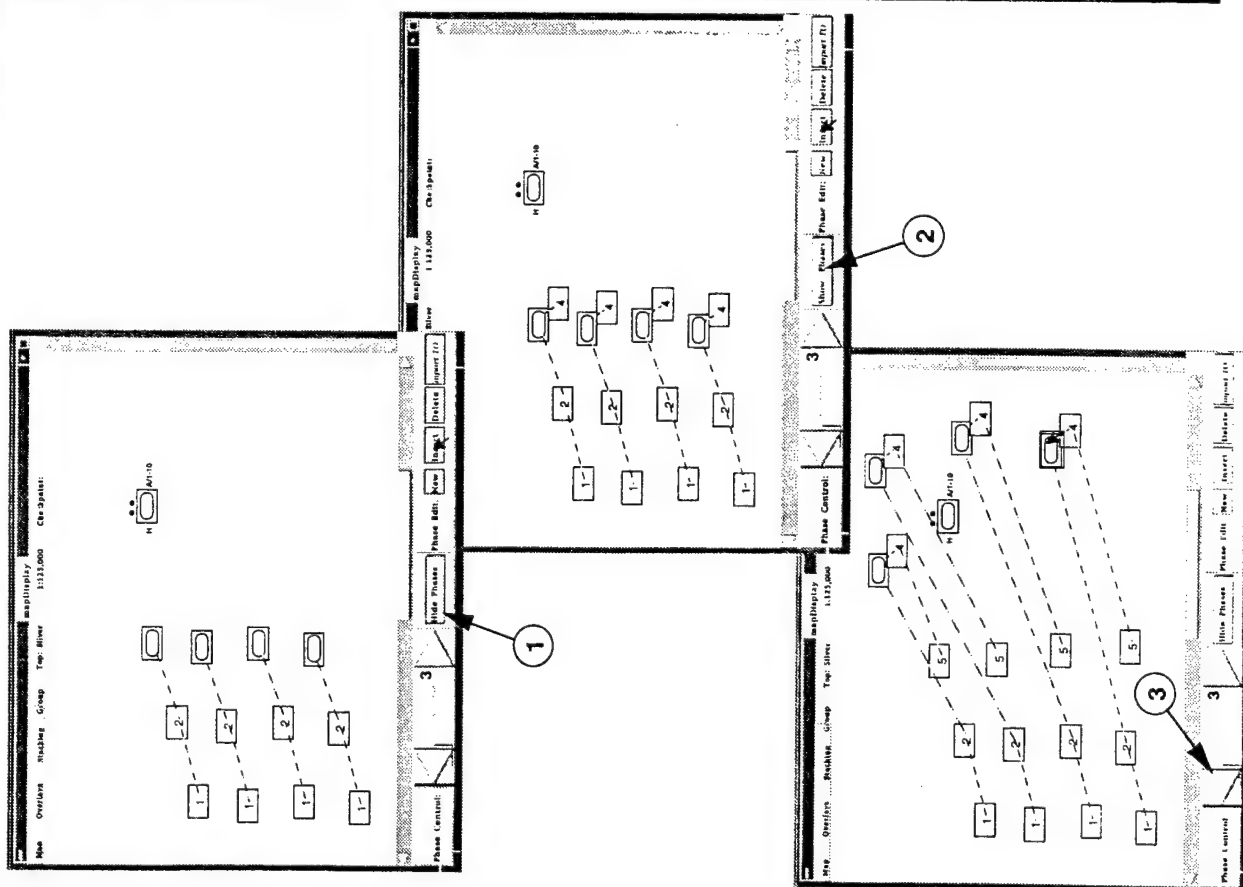
② Toggle on Show Phases

Ghost and current phase icons will
be displayed

Briefing COO overlays

③ Click on arrow buttons on the Select Phase slides to step through the overlay one phase at a time


Drag slides to arbitrarily move through
phases



TASK ORGANIZATION / OPERATIONAL EFFECTIVENESS

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Purpose	A-65
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Ammunition Status	A-67
Equipment Status	A-68
Fuel Status	A-69
Personnel Status	A-70

Task Organization/Operational Effectiveness (TO/OE) Module



Module Operation

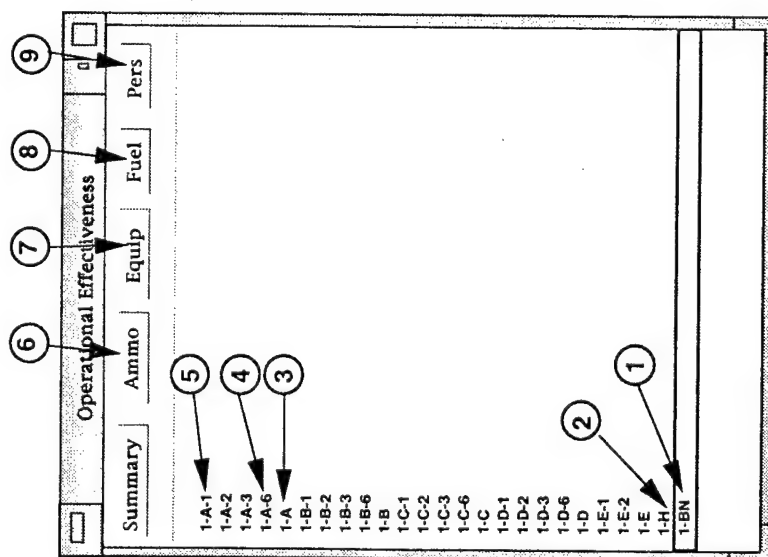
Purpose

The TO/OE Module can provide a summary OE status of:

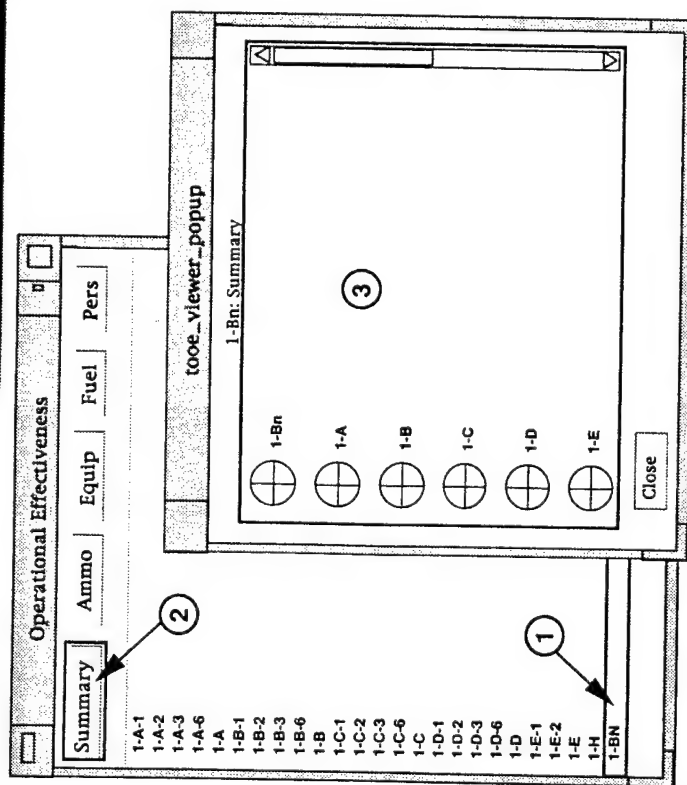
- ① The entire battalion (1-BN)
- ② The battalion commander and S3 (1-H)
- ③ A selected company (e.g., 1-A)
- ④ A selected company commander and XO (e.g., 1-A-6)
- ⑤ A selected platoon (e.g., 1-A-1)

The TO/OE Module can provide specific status in the following categories:

- ⑥ Ammunition (Ammo)
- ⑦ Equipment (Equip)
- ⑧ Fuel (Fuel)
- ⑨ Personnel (Pers)



Task Organization/Operational Effectiveness (TO/OE) Module



Module Operation (Cont.)

Getting Summary Information

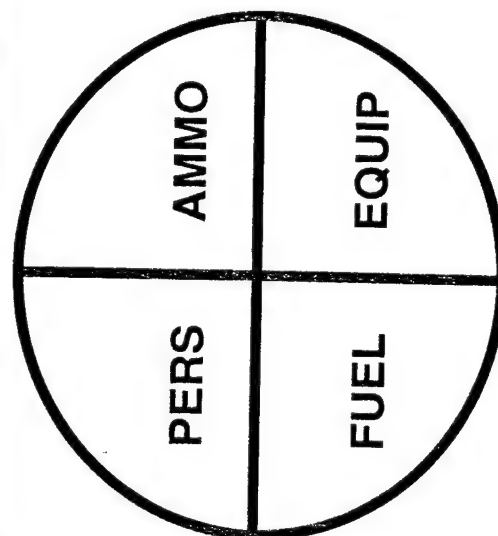
- ① Highlight desired unit
- ② Click on **Summary**
- ③ A summary pop-up will appear on the screen

Status Circle Chart

Each quadrant represents a specific operational effectiveness category

Quadrants will be color coded on your monitor in accordance with the following criteria

Green (G) = 90 - 100%
 Amber (A) = 70 - 89%
 Red (R) = 60 - 69%
 Black (B) = 0 - 59%



Task Organization/Operational Effectiveness (TO/OE) Module

Module Operations (Cont)

Ammunition

Highlight desired unit

Click on Ammo button in OE window

① An ammunition pop-up will appear on the screen

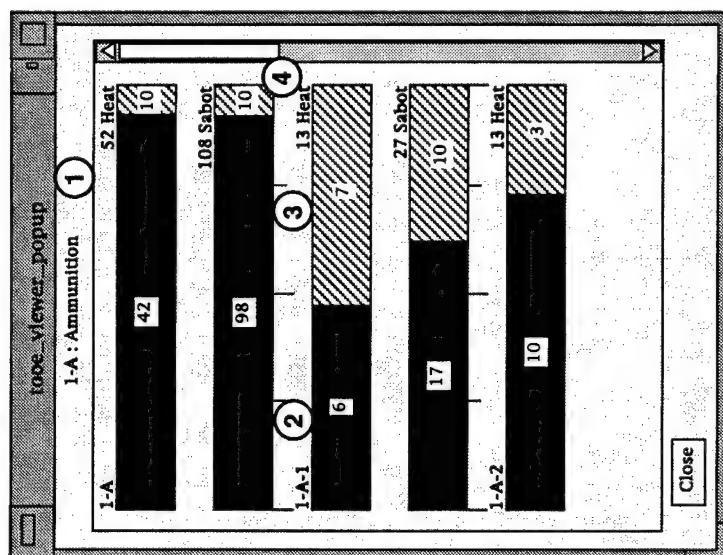
② The number in the left portion of the bargraph (solid color *) indicates the number of rounds remaining

③ The number in the right portion of the bargraph (hatched color *) indicates the number of rounds used

④ The number at the right top of the bargraph indicates the number of rounds required for a full basic load for the reporting vehicles. **

* NOTE: The entire bargraph will be colored IAW the criteria specified previously

** NOTE: If vehicles have been lost in combat, this number will be reduced accordingly.



Task Organization/Operational Effectiveness (TO/OE) Module

Module Operations (Cont)

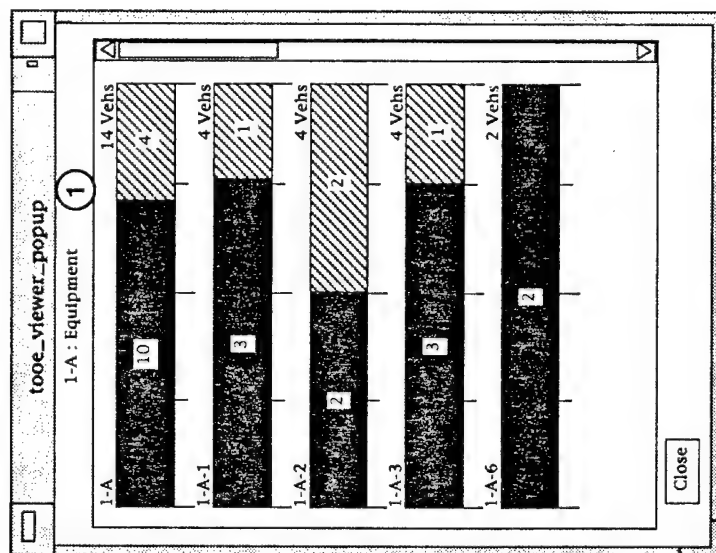
Equipment Status *

Highlight desired unit

Click on **Equip**

① *An equipment pop-up will appear on the screen*

* NOTE: The numbers depicted on the bargraph follow the same convention as for ammunition



Task Organization/Operational Effectiveness (TO/OE) Module

Module Operations (Cont)

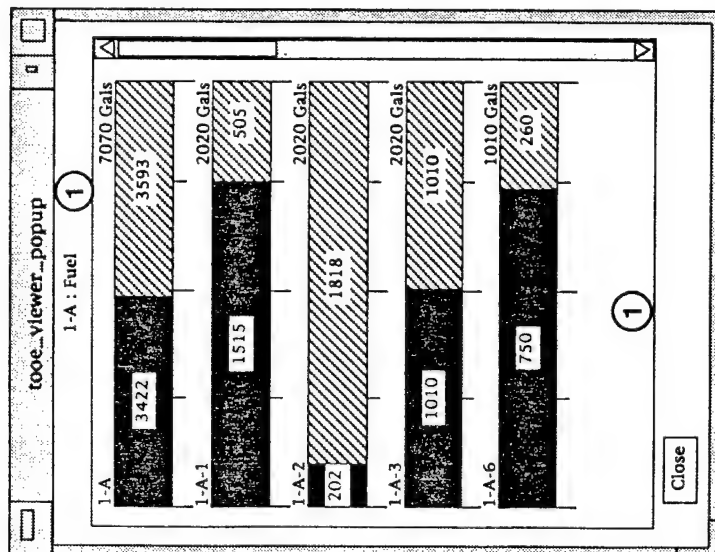
Fuel Status *

Highlight desired unit

Click on **Fuel**

① A fuel pop-up will appear on the screen

* NOTE: The numbers depicted on the screen follow the same convention as for ammunition



Task Organization/Operational Effectiveness (TO/OE) Module

Module Operations (Cont)

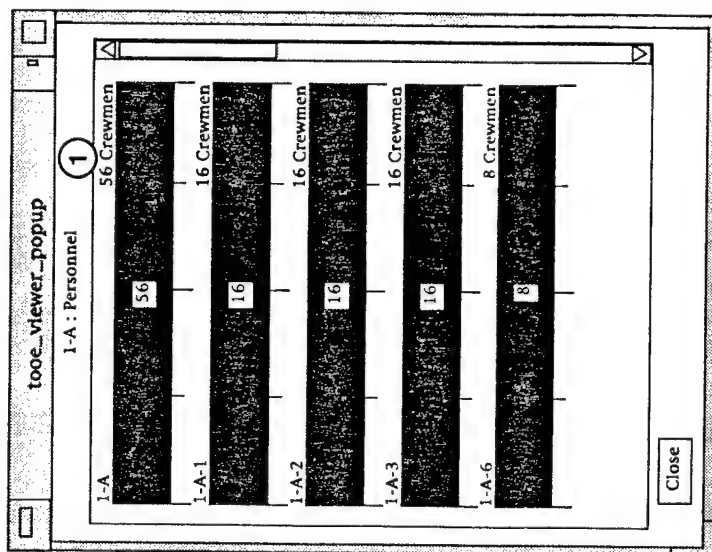
Personnel Status *

Highlight desired unit

Click on **Pers**

① A personnel pop-up will appear on the screen

* NOTE: The numbers depicted on the bargraph follow the same convention as for ammunition



FIRE SUPPORT MODULE

Contents

Page



Creating the Fire Support
Overlay

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TRPs (Target Reference Points)

A-72

Field Artillery / Mortar Positions

A-73



Calls for Fire (CFF)

A-74

Target Processing

A-74

Fire Support Module



Creating the Fire Support Overlay *

TRPs (Target Reference Points)

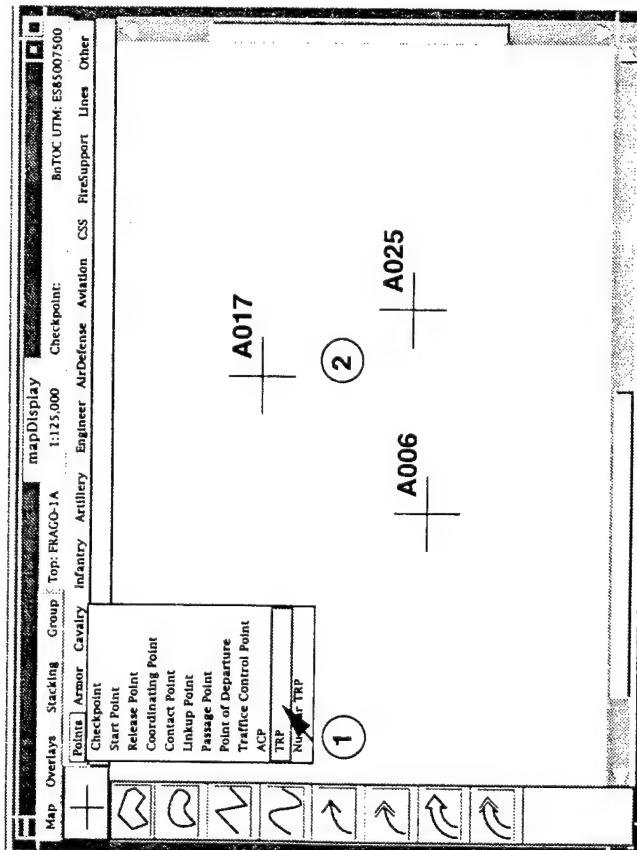
- ① Select TRP from the Points pull-down menu

Type in desired TRP number in the Label window on the attributes bar menu and return ↵

- ② "Drop" the TRP at desired location

Repeat until all TRPs are posted to the Fire Support overlay

* NOTE: See "Creating Overlays", p. 18



Fire Support Module

Creating the Fire Support Overlay (Cont)

Field Artillery / Mortar Positions

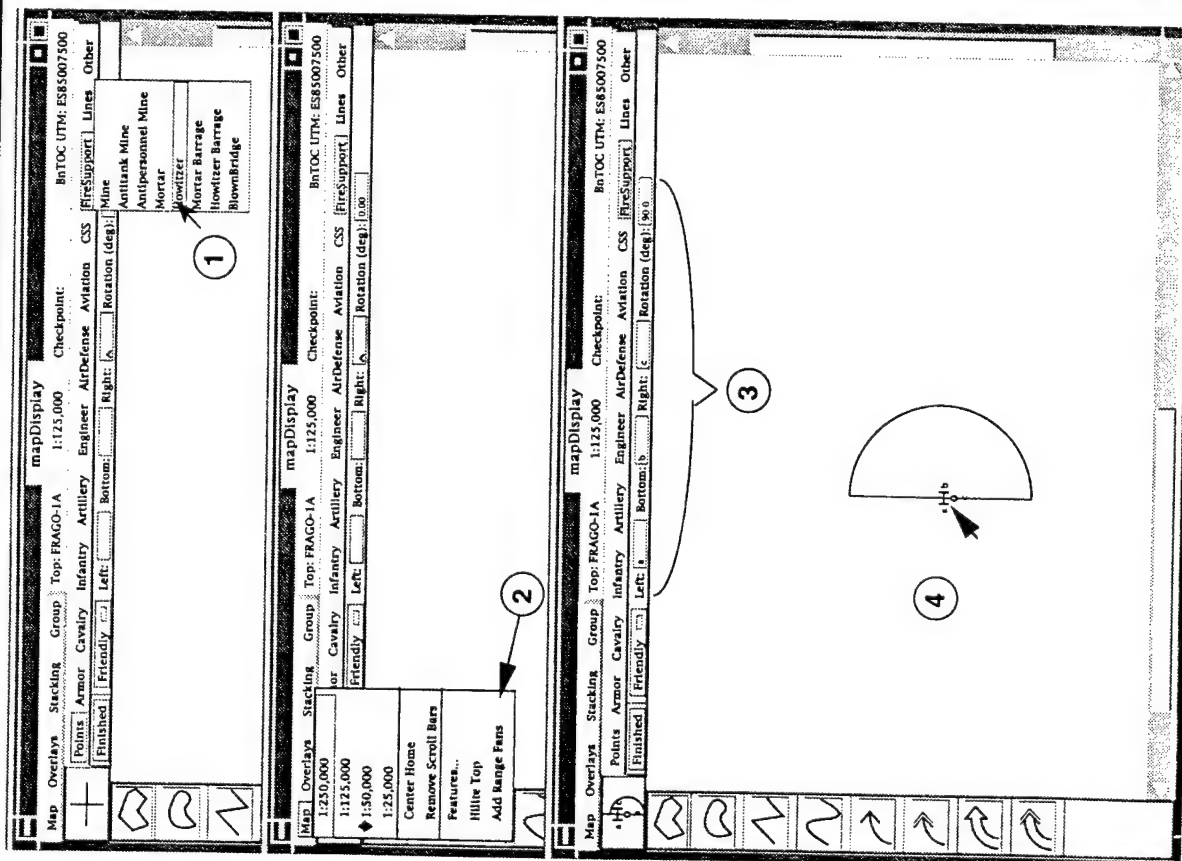
① Select the desired item from the **Fire Support** pull-down menu

② Select **Add Range Fans** from the Map menu

③ Type in the desired labels and rotation parameters in the attribute menu bar and return ↵

④ "Drop" the selected item at the desired location on the map

Repeat until all desired fire support systems are posted



Fire Support Module



Calls For Fire (CFF)

Target Processing

- 1 Select CFF from the Compose menu pull-down in the FSO / InFolder

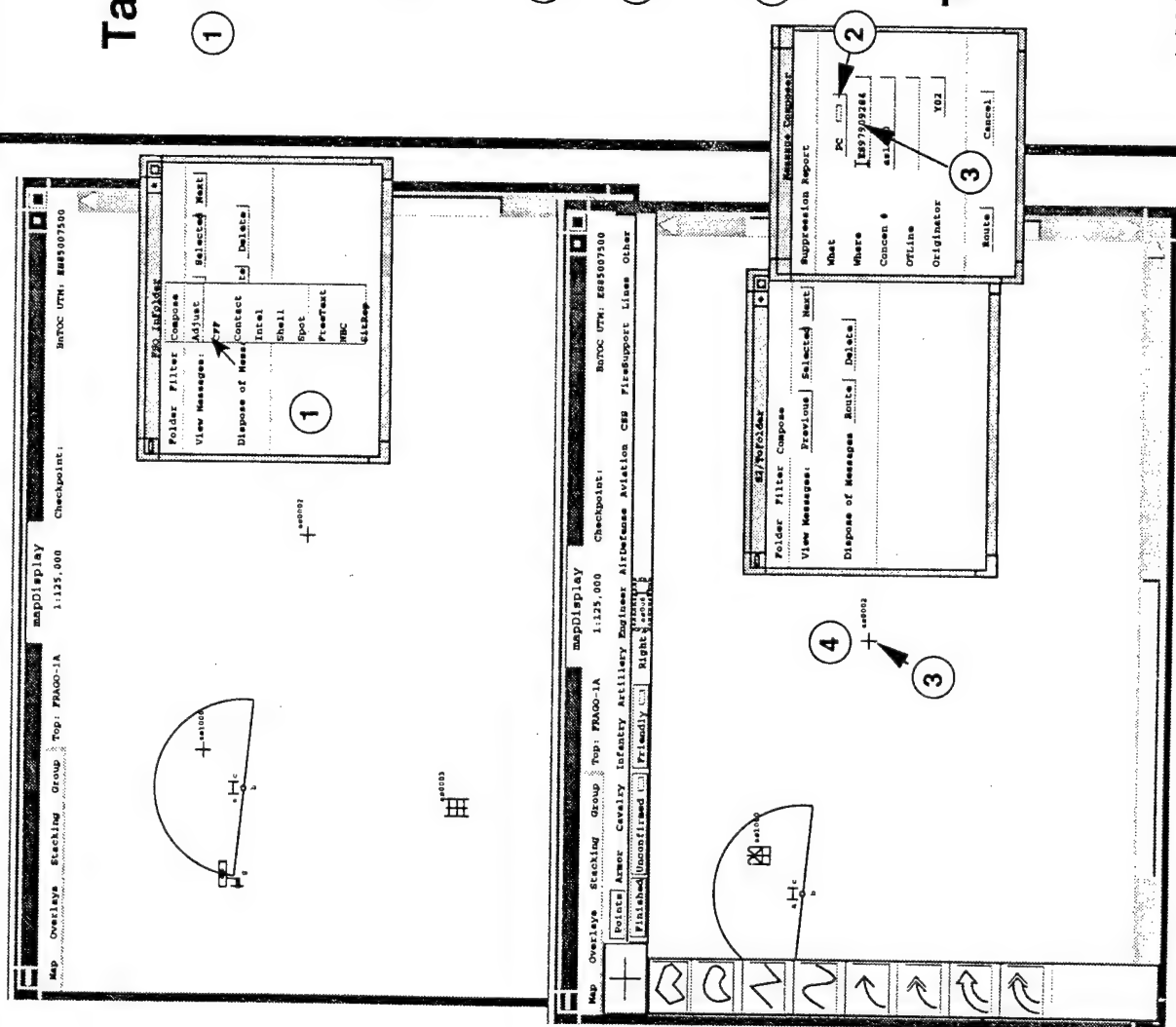
When the Message Composer menu appears:

- 2 Choose the type target -- What
- 3 Designate the location with the pointer -- Where

- 4 If the target is at or near a TRP or concentration, that number will appear in the concen # box *

Targets may be engaged using pre-planned concentrations with available and in-range fire support means.

* NOTE: You must be in Normal mode for this to function



SITUATION DISPLAY

CONTENTS

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Display Monitor A-76

Displays A-76

System Operations A-76

Situation Display



Display Monitor

paste-up from
BOB's stuff

Displays:

Friendly vehicle locations
(automatically)

Messages (when routed)

Enemy locations
Obstacles, minefields, etc.

Overlays (when posted)

System Operations:

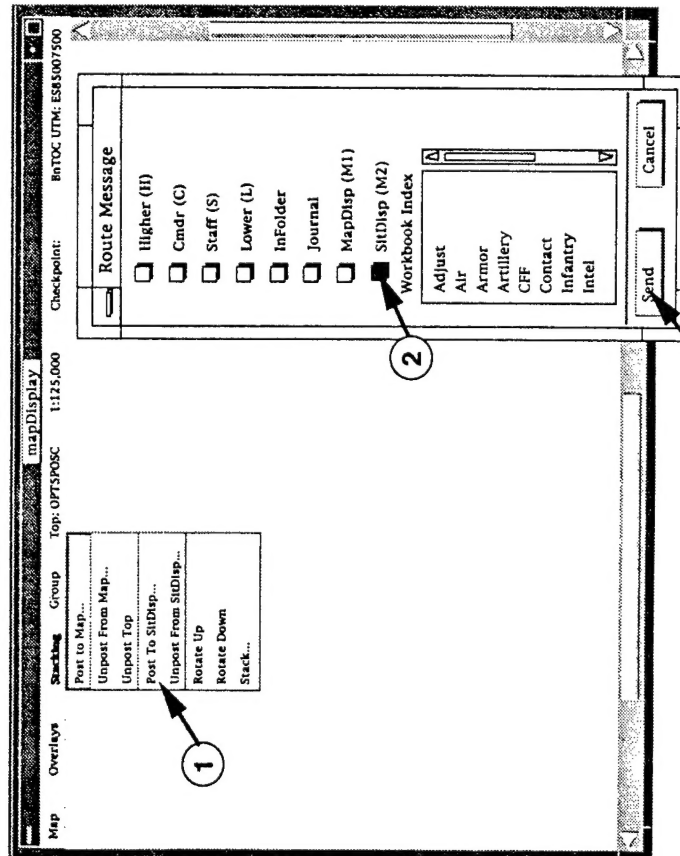
① To post overlays, select

Post to SitDisp from the Stacking
pull down menu on the Map
Display screen

② To post a message, select

SitDisp (M2) from the Route
Messages menu in the InFolder
window and click on **Send**


③



PRINTER

Contents

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 System Operation	A-78
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Printer



System Operation

Capability:

Color

Prints screen only

Hardwire mouse connected to selected workstation(s)

Printing:

Manipulate workstation screen to desired display

- ① Ensure Ready light on printer mouse is lit (Green)
- ② Depress center button on printer mouse
- ③ *Printing light will illuminate (Amber) and printing will begin (Amber light will go out after a few seconds)*

When printing is complete, the green Ready light will again illuminate

